8.7 Measurements Performance Requirements

Unless explicitly stated:

- Reported measurements shall be within defined range in 90 % of the cases.

- Measurement channel is 12.2 kbps as defined in Annex C, sub-clause C.3.1. This measurement channel is used both in active cell and cells to be measured.

- Physical channels used as defined in Annex E.

- Cell 1 is the active cell.

- Single task reporting.

- Power control is active.

Note: For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.

8.7.1 CPICH RSCP

8.7.1.1 Intra frequency measurements accuracy

8.7.1.1.1 Absolute accuracy requirement

8.7.1.1.1.1 Definition and applicability

The absolute accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the actual CPICH RSCP power from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.1.1 are valid under the following conditions:

CPICH_RSCP1$|_{dBm} \geq$ -114 dBm for Bands I, IV, VI, X, XI, XIX and XXI,

CPICH_RSCP1$|_{dBm} \geq$ -113 dBm for Band IX,

CPICH_RSCP1$|_{dBm} \geq$ -112 dBm for Bands II, V and VII,

CPICH_RSCP1$|_{dBm} \geq$ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII.

CPICH_RSCP1$|_{dBm} \geq$ -110.5 dBm for Band XXV and XXVI (NOTE 1).

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left. \frac{I_o}{\left(\hat{I}_{or}\right)} \right|_{in\ dB} - \left.\left(\frac{CPICH\_E_c}{I_{or}}\right)\right|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.1.1: CPICH_RSCP Intra frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	± 6	± 9	-94...-70	-93...-70	-92…-70	-90.5…-70 (Note 1)	-91…-70

	dBm	± 8	± 11	-70...-50	-70...-50	-70…-50	-70…-50	-70…-50

NOTE 1: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.1 and A.9.1.1.2.

8.7.1.1.1.3   Test purpose

The purpose of this test is to verify that the CPICH RSCP absolute measurement accuracy is within the specified limits in clause 8.7.1.1.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.1.4   Method of test

8.7.1.1.1.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency absolute accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

Table 8.7.1.1.1.2: CPICH RSCP Intra frequency parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-77.54		-59.98		-97.47	
	Band IX*						-96.47	
	Band II, V, VII						-95.47	
	Band XXV, XXVI						-93.97 (Note 2)	
	Band III, VIII, XII, XIII, XIV.XX, XXII						-94.47	
Ior/Ioc		dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-83.5	-87.5	-60.98	-69.88	-107.47	-114.0
	Band IX*						-106.47	-113.0
	Band II, V, VII						-105.47	-112.0
	Band XXV, XXVI						-103.97 (Note 2)	-110.5 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-104.47	-111.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-71		-50		-94	
	Band IX*						-93	
	Band II, V, VII						-92	
	Band XXV, XXVI						-90.5 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91	
Propagation condition		-	AWGN		AWGN		AWGN	

NOTE 1:	CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.
*)	For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.
NOTE 2:	The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies .

Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.

### 8.7.1.1.1.4.2	Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.1.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH_RSCP value in MEASUREMENT REPORT messages. CPICH RSCP power of Cell 1 and Cell 2 reported by UE is compared to actual CPICH RSCP power for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.1.1.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.1.1.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present

Information Element	Value/Remark
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.1.5 Test requirements

Table 8.7.1.1.3: CPICH_RSCP Intra frequency absolute accuracy, test requirement

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]				
				Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
CPICH_RSCP	dBm	±7.4	±10.4	-94...-70	-93...-70	-92...-70	-90.5…-70 (Note 1)	-91...-70
	dBm	±9.4	±12.4	-70...-50	-70...-50	-70...-50	-70…-50	-70...-50

NOTE 1: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

Table 8.7.1.1.1.4: CPICH RSCP Intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-79.16		-61,6		-96.47	

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
	Band IX*						-95.47	
	Band II, V, VII						-94.47	
	Band XXV, XXVI						-92.97 (Note 2)	
	Band III, VIII, XII, XIII, XIV,XX, XXII						-93.47	
Ior/Ioc		dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-84.86	-88.86	-62.3	-71.3	-106.17	-112.7
	Band IX*						-105.17	-111.7
	Band II, V, VII						-104.17	-110.7
	Band XXV, XXVI						-102.67 (Note 2)	-109.2 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII						-103.17	-109.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm / 3.84 MHz	-72.4		-51,4		-92,8	
	Band IX*						-91.8	
	Band II, V, VII						-90.8	
	Band XXV, XXVI						-89.3 (Note 2)	
	Band III, VIII, XII, XIII, XIV,XX, XXII						-89.8	
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the absolute intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.1.5.

Table 8.7.1.1.1.5: CPICH_RSCP Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3 (Band I, IV, VI, X, XI XIX, XXI)	Test 3 (Band IX)	Test 3 (Band II,V and VII)	Test 3 (Band III, VIII, XII, XIII, XIV, XX and XXII)
Normal Conditions						
Lowest reported value (Cell 1)	CPICH_RSCP _23	CPICH_RSCP _44	CPICH_RSCP _2	CPICH_RSCP _3	CPICH_RSCP _4	CPICH_RSCP _5
Highest reported value (Cell 1)	CPICH_RSCP _38	CPICH_RSCP _63	CPICH_RSCP _17	CPICH_RSCP _18	CPICH_RSCP _19	CPICH_RSCP _20
Lowest reported value (Cell 2)	CPICH_RSCP _19	CPICH_RSCP _35	CPICH_RSCP _-5 (NOTE 2)	CPICH_RSCP _-4 (NOTE 2)	CPICH_RSCP _-3 (NOTE 2)	CPICH_RSCP _-2 (NOTE 2)
Highest reported value (Cell 2)	CPICH_RSCP _34	CPICH_RSCP _54	CPICH_RSCP _10	CPICH_RSCP _11	CPICH_RSCP _12	CPICH_RSCP _13
Extreme Conditions						
Lowest reported value (Cell 1)	CPICH_RSCP _20	CPICH_RSCP _41	CPICH_RSCP _-1 (NOTE 2)	CPICH_RSCP _0	CPICH_RSCP _1	CPICH_RSCP _2
Highest reported value (Cell 1)	CPICH_RSCP _41	CPICH_RSCP _66	CPICH_RSCP _20	CPICH_RSCP _21	CPICH_RSCP _22	CPICH_RSCP _23
Lowest reported value (Cell 2)	CPICH_RSCP _16	CPICH_RSCP _32	CPICH_RSCP _-5 (NOTE 2)	CPICH_RSCP _-5 (NOTE 2)	CPICH_RSCP _-5 (NOTE 2)	CPICH_RSCP _-5 (NOTE 2)
Highest reported	CPICH_RSCP	CPICH_RSCP	CPICH_RSCP	CPICH_RSCP	CPICH_RSCP	CPICH_RSCP

value (Cell 2)	_37	_57	_13	_14	_15	_16

NOTE 1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

NOTE 2: This value applies for a UE complying to release 5 or later. The corresponding value for a pre-release 5 UE is CPICH_RSCP_0.

8.7.1.1.2 Relative accuracy requirement

8.7.1.1.2.1 Definition and applicability

The relative accuracy of CPICH RSCP is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.1.2.2 Minimum Requirements

The accuracy requirements in table 8.7.1.1.2.1 are valid under the following conditions:

$CPICH\_RSCP1,2|_{dBm} \geq -114$ dBm for Bands I, IV, VI, X, XI XIX and XXI

$CPICH\_RSCP1,2|_{dBm} \geq -113$ dBm for Band IX,

$CPICH\_RSCP1,2|_{dBm} \geq -112$ dBm for Bands II, V, VII,

$CPICH\_RSCP1,2|_{dBm} \geq -111$ dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

$CPICH\_RSCP1,2|_{dBm} \geq -110.5$ dBm for Band XXV and XXVI (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\ dBm} - CPICH\_RSCP2 \left|_{in\ dBm} \right| \leq 20dB$$

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left(\frac{CPICH\_E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20dB$$

Table 8.7.1.1.2.1: CPICH_RSCP Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	± 3	± 3	-94...-50	-93...-50	-92…-50	-90.5…-50 (Note 1)	-91…-50
NOTE 1: The condition is -90.5…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.1.2 and A.9.1.1.2.

8.7.1.1.2.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.1.2.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.1.2.4   Method of test

8.7.1.1.2.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH RSCP intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.1.1.2.

8.7.1.1.2.4.2   Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.1.2.3.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

5) The result of step 4) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.1.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The RF parameters are set up according to table 8.7.1.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.1.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.1.2.5   Test requirements

Table 8.7.1.1.2.2: CPICH_RSCP Intra frequency relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Io [dBm/3.84 MHz]				
				Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
CPICH_RSCP	dBm	±3.8	±3.8	-94...-50	-93...-50	-92...-50	-90.5…-50 (Note 1)	-91...-50
NOTE 1: The condition is -90.5…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

Table 8.7.1.1.2.3: CPICH RSCP Intra frequency test parameters

Parameter		Unit	Test 1 Cell 1	Test 1 Cell 2	Test 2 Cell 1	Test 2 Cell 2	Test 3 Cell 1	Test 3 Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-74.54		-61,6		-96.47	
	Band IX*						-95.47	
	Band II, V, VII						-94.47	
	Band XXV, XXVI						-92.97 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-93.47	
Ior/Ioc		dB	4.3	0.3	9.3	0.3	0.3	-6.23
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-80.2	-84.2	-62.3	-71.3	-106.17	-112.7
	Band IX*						-105.17	-111.7
	Band II, V, VII						-104.17	-110.7
	Band XXV, XXVI						-102.67 (Note 2)	-109.2 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-103.17	-109.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-67.8		-51,4		-92,8	
	Band IX*						-91.8	
	Band II, V, VII						-90.8	
	Band XXV, XXVI						-89.3 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-89.8	
Propagation condition		-	AWGN		AWGN		AWGN	

NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.

NOTE 2 The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.

The reported values for the relative intra frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.1.2.4.

Table 8.7.1.1.2.4: CPICH_RSCP Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell 2	CPICH_RSCP_x	CPICH_RSCP_(x - 5)	CPICH_RSCP_(x - 3)
Extreme Conditions			
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 13)	CPICH_RSCP_(x - 11)
Highest reported value cell2	CPICH_RSCP_x	CPICH_RSCP_(x - 5)	CPICH_RSCP_(x - 3)
CPICH_RSCP_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.1.2 Inter frequency measurement accuracy

8.7.1.2.1 Relative accuracy requirement

8.7.1.2.1.1 Definition and applicability

The relative accuracy of CPICH RSCP in inter frequency case is defined as the CPICH RSCP measured from one cell compared to the CPICH RSCP measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.1.2.1.2 Minimum Requirements

The accuracy requirements in table 8.7.1.2.1.1 are valid under the following conditions:

$CPICH\_RSCP1,2|_{dBm} \geq$ -114 dBm for Bands I, IV, VI X, XI XIX and XXI,

$CPICH\_RSCP1,2|_{dBm} \geq$ -113 dBm for Band IX,

$CPICH\_RSCP1,2|_{dBm} \geq$ -112 dBm for Bands II, V and VII,

$CPICH\_RSCP1,2|_{dBm} \geq$ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

$CPICH\_RSCP1,2|_{dBm} \geq$ -110.5 dBm for Band XXV and XXVI (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\ dBm} - CPICH\_RSCP2 \Big|_{in\ dBm} \Big| \leq 20 dB$$

| Channel 1_Io$|_{dBm/3.84\ MHz}$ -Channel 2_Io$|_{dBm/3.84\ MHz}$ | $\leq$ 20 dB.

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left(\frac{CPICH\_E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20 dB$$

Table 8.7.1.2.1.1: CPICH_RSCP Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3.84 MHz]
CPICH_RSCP	dBm	± 6	± 6	-94...-50	-93...-50	-92…-50	-90.5…-50 (Note 1)	-91…-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.1.2.1 and A.9.1.1.2.

8.7.1.2.1.3 Test purpose

The purpose of this test is to verify that the CPICH RSCP relative measurement accuracy is within the specified limits in clause 8.7.1.2.1.2. This measurement is for handover evaluation, DL open loop power control, UL open loop control and for the calculation of pathloss.

8.7.1.2.1.4 Method of test

8.7.1.2.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.1.2.1.2.

Table 8.7.1.2.1.2: CPICH RSCP Inter frequency parameters

Parameter		Unit	Test 1		Test 2	
			Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12	
SCH_Ec/Ior		dB	-12		-12	
PICH_Ec/Ior		dB	-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94
Ioc	Band I, IV, VI, X, XX, XIX, XXI	dBm/3.84 MHz	-60.00	-60.00	-84.00	-94.46
	Band IX*				-83.00	-93.46
	Band II, V, VII				-82.00	-92.46
	Band XXV, XXVI				-80.5 (Note 2)	-90.96 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII				-81.00	-91.46
Ior/Ioc		dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-60.46	-60.46	-94.0	-114.0
	Band IX*				-93.0	-113.0
	Band II, V, VII				-92.0	-112.0
	Band XXV, XXVI				-90.5 (Note 2)	-110.5 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII				-91.0	-111.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
	Band IX*				-80.0	-93.0
	Band II, V, VII				-79.0	-92.0
	Band XXV, XXVI				-77.5 (Note 2)	-90.5 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII				-78.0	-91.0
Propagation condition		-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.						
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.						
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.						
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.						

8.7.1.2.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.1.2.1.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for intra frequency measurement and transmit MEASUREMENT CONTROL message for inter frequency measurement.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check CPICH_RSCP value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. CPICH RSCP power value measured from Cell 1 is compared to CPICH RSCP power value measured from Cell 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of CPICH RSCP of Cell 1 and Cell 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.1.2.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 1):

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	

Information Element	Value/Remark	Version
Uplink radio resources		
-Maximum allowed UL TX power	Not Present	
- CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links		
-Downlink DPCH info common for all RL	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info		
-Transmission gap pattern sequence		
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	3	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity Mode	Not Present	
-SSDT information	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link		
-Choice mode	FDD	
-Primary CPICH info		
-Primary scrambling code	100	
-PDSCH with SHO DCH Info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement object list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-Cell for measurement	Not Present
-Inter-frequency measurement quantity	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	2
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.1.2.1.5 Test requirements

Table 8.7.1.2.1.3: CPICH_RSCP Inter frequency relative accuracy, test requirements

| Parameter | Unit | Accuracy [dB] | | Conditions | | | | |
| | | | | Io [dBm/3.84 MHz] | | | | |
		Normal condition	Extreme condition	Band I, IV, VI X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
CPICH_RSCP	dBm	±7.1	±7.1	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

Table 8.7.1.2.1.4: CPICH RSCP Inter frequency tests parameters

| Parameter | | Unit | Test 1 | | Test 2 | |
			Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12	
SCH_Ec/Ior		dB	-12		-12	
PICH_Ec/Ior		dB	-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94
Ioc	Band I, IV, VI, X,XI, XIX, XXI	dBm/3.84 MHz	-61.6	-61.6	-83.00	-93.46
	Band IX*				-82.00	-92.46
	Band II, V, VII				-81.00	-91.46
	Band XXV, XXVI				-79.50 (Note 2)	-89.96 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-80.00	-90.46
Ior/Ioc		dB	9.84	9.84	0.3	-9.24
CPICH RSCP, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm	-61.8	-61.8	-92.7	-112.7
	Band IX*				-91.7	-111.7
	Band II, V, VII				-90.7	-110.7
	Band XXV, XXVI				-89.2 (Note 2)	-109.2 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-89.7	-109.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-51.3	-51.3	-79.8	-93.0
	Band IX*				-78.8	-92.0
	Band II, V, VII				-77.8	-91.0
	Band XXV, XXVI				-76.3 (Note 2)	-89.5 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-76.8	-90.0
Propagation condition		-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.						
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.						
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.						
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.						

The reported values for the relative inter frequency CPICH RSCP measurement shall meet the requirements in table 8.7.1.2.1.5.

Table 8.7.1.2.1.5: CPICH_RSCP Inter frequency relative accuracy requirements for the reported values

	Test 1	**Test 2**
Normal Conditions		
Lowest reported value cell 2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell 2	CPICH_RSCP_(x + 8)	CPICH_RSCP_(x - 12)
Extreme Conditions		
Lowest reported value cell2	CPICH_RSCP_(x - 8)	CPICH_RSCP_(x - 28)
Highest reported value cell2	CPICH_RSCP_(x + 8)	CPICH_RSCP_(x - 12)
CPICH_RSCP_x is the reported value of cell 1		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2 CPICH Ec/Io

8.7.2.1 Intra frequency measurements accuracy

8.7.2.1.1 Absolute accuracy requirement

8.7.2.1.1.1 Definition and applicability

The absolute accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the actual CPICH_Ec/Io power ratio from same cell.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.1.2 Minimum Requirements

The accuracy requirements in table 8.7.2.1.1.1 are valid under the following conditions:

$CPICH\_RSCP1|_{dBm} \geq$ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

$CPICH\_RSCP1|_{dBm} \geq$ -113 dBm for Band IX,

$CPICH\_RSCP1|_{dBm} \geq$ -112 dBm for Bands II, V and VII,

$CPICH\_RSCP1|_{dBm} \geq$ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

$CPICH\_RSCP1|_{dBm} \geq$ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left.\frac{I_o}{\left(\hat{I}_{or}\right)}\right|_{in\ dB} - \left.\left(\frac{CPICH\_E_c}{I_{or}}\right)\right|_{in\ dB} \leq 20dB$$

Table 8.7.2.1.1.1: CPICH_Ec/Io Intra frequency absolute accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]
CPICH_Ec/Io	dB	$\pm$ 1.5 for -14 $\leq$ CPICH Ec/Io $\pm$ 2 for -16 $\leq$ CPICH Ec/Io < -14 $\pm$ 3 for -20 $\leq$ CPICH Ec/Io < -16	$\pm$ 3	-94...-50	-93...-50	-92…-50	-90.5...-50 (Note 1)	-91…-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clause 9.1.2.1.1.

8.7.2.1.1.3   Test purpose

The purpose of this test is to verify that the CPICH Ec/Io absolute measurement accuracy is within the specified limits in clause 8.7.2.1.1.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.1.4   Method of test

8.7.2.1.1.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on the same frequency. CPICH Ec/Io intra frequency absolute accuracy requirements are tested by using the test parameters in table 8.7.2.1.1.2.

Table 8.7.2.1.1.2: CPICH_Ec/Io Intra frequency parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-15	-	-6	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-1.11	-0.94	-2.56	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm / 3.84 MHz	-56.98		-89.07		-94.98	
	Band IX*				-88.07		-93.98	
	Band II, V, VII				-87.07		-92.98	
	Band XXV, XXVI				-85.57		-91.48 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII				-86.07		-91.98	
Ior/Ioc		dB	3.0	3.0	-2.9	-2.9	-9.0	-9.0
CPICH Ec/Io, Note 1		dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50		-86		-94	
	Band IX*				-85		-93	
	Band II, V, VII				-84		-92	
	Band XXV, XXVI				-82.5		-90.5 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII				-83		-91	
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.2.1.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.1.1.5.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH_Ec/No value in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1, which is compared to the actual CPICH Ec/Io power ratio from the same cell for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.2.1.1.5 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.2.1.1.5 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Table 8.7.2.1.1.3: CPICH Ec/Io measurement report mapping

Reported value	Measured quantity value	Unit
CPICH_Ec/No _00	CPICH Ec/Io < -24	dB
CPICH_Ec/No _01	-24 ≤ CPICH Ec/Io < -23.5	dB
CPICH_Ec/No _02	-23.5 ≤ CPICH Ec/Io < -23	dB
…	…	…
CPICH_Ec/No _47	-1 ≤ CPICH Ec/Io < -0.5	dB
CPICH_Ec/No _48	-0.5 ≤ CPICH Ec/Io < 0	dB
CPICH_Ec/No _49	0 ≤ CPICH Ec/Io	dB

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 1):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	FALSE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present

Information Element	Value/Remark
-CHOICE report criteria -Amount of reporting -Reporting interval	Periodical reporting criteria Infinity 250 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.1.5 Test requirements

The CPICH Ec/Io measurement accuracy shall meet the requirements in clause 8.7.2.1.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX and XXI, -98 dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 for Band XXV and XXVI) shall be added into the required accuracy defined in subclause 8.7.2.1.1.2 as shown in table 8.7.2.1.1.4.

Table 8.7.2.1.1.4: CPICH_Ec/Io Intra frequency absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]		Extreme condition	Conditions				
		Normal condition			Io [dBm/3.84 MHz]				
					Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II,V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV and XX
CPICH_Ec/Io	dB	-3.1…1.9 for -14 $\leq$ CPICH Ec/Io −3.6…2.4 for -16 $\leq$ CPICH Ec/Io < -14 −4.6…3.4 for -20 $\leq$ CPICH Ec/Io < -16		-4.6…3.4	-94...-87	-93...-86	-92...-85	-90.5...-83.5 (Note 1)	-91...-84
		$\pm$ 1.95 for -14 $\leq$ CPICH Ec/Io $\pm$ 2.4 for -16 $\leq$ CPICH Ec/Io < -14 $\pm$ 3.4 for -20 $\leq$ CPICH Ec/Io < -16		$\pm$ 3.4	-87...-50	-86...-50	-85...-50	-83.5...-50 (Note 1)	-84...-50
NOTE 1: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies ..									

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.1.1.5: CPICH_Ec/Io Intra frequency tests parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior		dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior		dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior		dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior		dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior		dB	-1.2	-1.02	-1.17	-0.99	-2.64	-0.97
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm / 3.84 MHz	-58.5		-89.07		-93.98	
	Band IX*				-88.07		-92.98	
	Band II, V, VII				-87.07		-91.98	
	Band XXV, XXVI				-85.57 (Note 2)		-90.48 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII				-86.07		-90.98	
Ior/Ioc		dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1		dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm / 3.84 MHz	-51.3		-85.85		-92.9	
	Band IX*				-84.85		-91.9	
	Band II, V, VII				-83.85		-90.9	
	Band XXV, XXVI				-82.35 (Note 2)		-89.4 (Note 2)	
	Band III, VIII, XII, XIII, XIV, XX, XXII				-82.85		-89.9	
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the absolute intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.1.6.

Table 8.7.2.1.1.6: CPICH_Ec/Io Intra frequency absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value	CPICH_Ec/No_17	CPICH_Ec/No_12	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_25	CPICH_Ec/No_22	CPICH_Ec/No_16
Extreme Conditions			
Lowest reported value	CPICH_Ec/No_14	CPICH_Ec/No_10	CPICH_Ec/No_0
Highest reported value	CPICH_Ec/No_28	CPICH_Ec/No_24	CPICH_Ec/No_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.1.2 Relative accuracy requirement

8.7.2.1.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on the same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.1.2.2   Minimum Requirements

The accuracy requirements in table 8.7.2.1.2.1 are valid under the following conditions:

CPICH_RSCP1,2|$_{dBm}$ ≥ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

CPICH_RSCP1,2|$_{dBm}$ ≥ -113 dBm for Band IX,

CPICH_RSCP1,2|$_{dBm}$ ≥ -112 dBm for Bands II, V and VII,

CPICH_RSCP1,2|$_{dBm}$ ≥ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

CPICH_RSCP1,2|$_{dBm}$ ≥ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1:   The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\ dBm} - CPICH\_RSCP2 \Big|_{in\ dBm} \le 20 dB$$

$$\frac{I_o}{\left(\hat{I}_{or} \right)} \Bigg|_{in\ dB} - \left(\frac{CPICH\_E_c}{I_{or}} \right) \Bigg|_{in\ dB} \le 20 dB$$

Table 8.7.2.1.2.1: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3,84 MHz]	Io [dBm/3.84 MHz]
The lower of the CPICH_Ec/Io from cell1 and cell2	dB	± 1.5 for -14 ≤ CPICH Ec/Io ± 2 for -16 ≤ CPICH Ec/Io < -14 ± 3 for -20 ≤ CPICH Ec/Io < -16	± 3	-94...-50	-93...-50	-92…-50	-90.5…-50 (Note 1)	-91…-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.1.2 and A.9.1.2.2.

8.7.2.1.2.3   Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.1.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.1.2.4   Method of test

8.7.2.1.2.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are in the same frequency. CPICH Ec/Io intra frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.1.1.2.

8.7.2.1.2.4.2   Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.1.2.3.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio value measured from Cell 1 is compared to CPICH_Ec/Io power ratio value measured from Cell 2 for each MEASUREMENT REPORT message.

5) The result of step 4) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.2.1.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The RF parameters are set up according to table 8.7.2.1.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement in clause 8.7.2.1.1.4.2 is used.

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.1.2.5   Test requirements

Table 8.7.2.1.2.2: CPICH_Ec/Io Intra frequency relative accuracy

Parameter	Unit	Accuracy [dB]			Conditions				
		Normal condition	Extreme condition		Io [dBm / 3.84 MHz]				
				Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV and XX
CPICH_Ec/Io	dB	±2.3 for -14 ≤ CPICH Ec/Io ±2.8 for -16 ≤ CPICH Ec/Io < -14 ±3.8 for -20 ≤ CPICH Ec/Io < -16	±3.8	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.									

Table 8.7.2.1.2.3: CPICH_Ec/Io Intra frequency tests parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-9.7		-9.8		-9.9	
PCCPCH_Ec/Ior		dB	-11.7		-11.8		-11.9	
SCH_Ec/Ior		dB	-11.7		-11.8		-11.9	
PICH_Ec/Ior		dB	-14.7		-14.8		-14.9	
DPCH_Ec/Ior		dB	-14.7	-	-14.8	-	-5.9	-
OCNS_Ec/Ior		dB	-1.2	- 1.02	-1.17	-0.99	-2.64	-0.97
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-58.5		-89.07		-93.98	
	Band IX*				-88.07		-92.98	
	Band II, V, VII				-87.07		-91.98	
	Band XXV, XXVI				-85.57		-90.48 (Note 2)	
	Band III, VIII, XII, XIII, XIV,XX, XXII				-86.07		-90.98	
Ior/Ioc		dB	3.3	3.3	-2.6	-2.6	-8.7	-8.7
CPICH Ec/Io, Note 1		dBm	-13.6	-13.6	-15.6	-15.6	-19.6	-19.6
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm / 3.84 MHz	-51,3		-85.85		-92.9	
	Band IX*				-84.85		-91.9	
	Band II, V, VII				-83.85		-90.9	
	Band XXV, XXVI				-82.35		-89.4 (Note 2)	
	Band III, VIII, XII, XIII, XIV,XX, XXII				-82.85		-89.9	
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. *) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE. NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies .								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the relative intra frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.1.2.4.

Table 8.7.2.1.2.4: CPICH_Ec/Io Intra frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x - 5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 8)
Highest reported value cell 2	CPICH_Ec/No_(x+ 5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x+ 8)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)
Highest reported value cell2	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)	CPICH_Ec/No_(x+ 8)
CPICH_Ec/No_x is the reported value of cell 1			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.2.2 Inter frequency measurement accuracy

8.7.2.2.1 Absolute accuracy requirement

Void

8.7.2.2.2 Relative accuracy requirement

8.7.2.2.2.1 Definition and applicability

The relative accuracy of CPICH Ec/Io in the inter frequency case is defined as the CPICH Ec/Io measured from one cell compared to the CPICH Ec/Io measured from another cell on a different frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.2.2.2.2 Minimum Requirements

The accuracy requirements in table 8.7.2.2.2.1 are valid under the following conditions:

$CPICH\_RSCP1,2|_{dBm} \geq -114$ dBm for Bands I, IV, VI, X, XI XIX and XXI,

$CPICH\_RSCP1,2|_{dBm} \geq -113$ dBm for Band IX,

$CPICH\_RSCP1,2|_{dBm} \geq -112$ dBm for Bands II, V and VII,

$CPICH\_RSCP1,2|_{dBm} \geq -111$ dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

$CPICH\_RSCP1,2|_{dBm} \geq -110.5$ dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\ dBm} - CPICH\_RSCP2 \Big|_{in\ dBm} \leq 20dB$$

| Channel 1_Io$|_{dBm/3.84\ MHz}$ -Channel 2_Io$|_{dBm/3.84\ MHz}$ | ≤ 20 dB.

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left. \left(\frac{CPICH\_E_c}{I_{or}} \right) \right|_{in\ dB} \leq 20dB$$

Table 8.7.2.2.2.1: CPICH_Ec/Io Inter frequency relative accuracy, minimum requirements

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]
The lower of the CPICH_Ec/Io from cell1 and cell2	dB	± 1.5 for $-14 \leq$ CPICH Ec/Io ± 2 for $-16 \leq$ CPICH Ec/Io < -14 ± 3 for $-20 \leq$ CPICH Ec/Io < -16	± 3	-94...-50	-93...-50	-92…-50	-90.5...-50 (Note 1)	-91…-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.2.2.2 and A.9.1.2.2.

8.7.2.2.2.3 Test purpose

The purpose of this test is to verify that the CPICH Ec/Io relative measurement accuracy is within the specified limits in clause 8.7.2.2.2.2. This measurement is for Cell selection/re-selection and for handover evaluation.

8.7.2.2.2.4 Method of test

8.7.2.2.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

CPICH Ec/Io inter frequency relative accuracy requirements are tested by using test parameters in table 8.7.2.2.2.2.

Table 8.7.2.2.2.2: CPICH Ec/Io Inter frequency parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-52.22	-52.22	-87.27	-87.27	-94.46	-94.46
	Band IX*				-86.27	-86.27	-93.46	-93.46
	Band II, V, VII				-85.27	-85.27	-92.46	-92.46
	Band XXV, XXVI				83.77	83.77	90.96 (Note 2)	90.96 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-84.27	-84.27	-91.46	-91.46
Ior/Ioc		dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1		dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50	-50	-86	-86	-94	-94
	Band IX*				-85	-85	-93	-93
	Band II, V, VII				-84	-84	-92	-92
	Band XXV, XXVI				82.4	82.4	90.5 (Note 2)	90.5 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII				-83	-83	-91	-91
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.2.2.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.2.2.2.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit a MEASUREMENT CONTROL message for intra frequency measurement and transmit another MEASUREMENT CONTROL message for inter frequency measurement.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check CPICH_Ec/No value of Cell 1 and Cell 2 in MEASUREMENT REPORT messages. According to table 8.7.2.1.1.3 the SS calculates CPICH_Ec/Io power ratio of Cell 1 and Cell 2. CPICH_Ec/Io power ratio measured from Cell 1 is compared to CPICH_Ec/Io power value measured from Cell 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of CPICH_Ec/Io of Cell 1 and Cell 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.2.2.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The RF parameters are set up according to table 8.7.2.2.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

11) The SS shall transmit RRC CONNECTION RELEASE message.

12) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	

Information Element	Value/Remark	Version
RB information elements -Downlink counter synchronisation info	Not Present	
PhyCH information elements -Frequency info	Not Present	
Uplink radio resources -Maximum allowed UL TX power - CHOICE channel requirement	Not Present Not Present	
Downlink radio resources -CHOICE mode -Downlink PDSCH information	FDD Not Present	R99 and Rel-4 only
-Downlink information common for all radio links -Downlink DPCH info common for all RL -CHOICE mode -DPCH compressed mode info -Transmission gap pattern sequence -TGPSI -TGPS Status Flag -TGCFN -Transmission gap pattern sequence configuration parameters -TGMP -TGPRC -TGSN -TGL1 -TGL2 -TGD -TGPL1 -TGPL2	 Not Present FDD 1 Activate (Current CFN + (256 – TTI/10msec))mod 256 FDD measurement Infinity 4 7 Not Present UNDEFINED 3 Not Present	R99 and Rel-4 only
-RPP -ITP -CHOICE UL/DL mode -Downlink compressed mode method -Uplink compressed mode method -Downlink frame type -DeltaSIR1 -DeltaSIRafter1 -DeltaSIR2 -DeltaSIRafter2 -N Identify abort -T Reconfirm abort -TX Diversity Mode -SSDT information	Mode 0 Mode 0 UL and DL SF/2 SF/2 B 3.0 3.0 Not Present Not Present Not Present Not Present Not Present Not Present	R99 and Rel-4 only
-Default DPCH Offset Value -Downlink information per radio link list -Downlink information for each radio link -Choice mode -Primary CPICH info -Primary scrambling code -PDSCH with SHO DCH Info	Not Present FDD 100 Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL -CHOICE mode -Primary CPICH usage for channel estimation -DPCH frame offset -Secondary CPICH info -DL channelisation code -Secondary scrambling code -Spreading factor -Code number -Scrambling code change -TPC combination index	 FDD Primary CPICH may be used Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400 Not Present Not Present 128 96 No code change 0	

Information Element	Value/Remark	Version
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

First MEASUREMENT CONTROL message for Intra frequency measurement (Step 4):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	
-Intra-frequency cell info list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

Second MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-Cell for measurement	Not Present
-Inter-frequency measurement quantity	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	2
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.2.2.2.5   Test requirements

The effect of assumed thermal noise and noise generated in the receiver -99 dBm for Band I, IV, VI, X, XI, XIX and XXI, -98 dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band IIII, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV and XXVI) shall be added into the required accuracy defined in clause 8.7.2.2.2.2 as shown in table 8.7.2.2.2.3.

Table 8.7.2.2.2.3: CPICH_Ec/Io Inter frequency relative accuracy, test requirements

Parameter	Unit	Normal condition	Extreme condition	Io [dBm/3.84 MHz]				
				Band I, IV, VI, X, XI XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
CPICH_Ec/Io	dB	±3.5 for -14 ≤ CPICH Ec/Io ±4 for -16 ≤ CPICH Ec/Io < -14 ±5 for -20 ≤ CPICH Ec/Io < -16	± 5	-94...-87	-93...-86	-92...-85	-90.5...-84.5 (Note 1)	-91...-84
		±2.3 for -14 ≤ CPICH Ec/Io ± 2.8 for -16 ≤ CPICH Ec/Io < -14 ± 3.8 for -20 ≤ CPICH Ec/Io < -16	± 3.8	-87...-50	-86...-50	-85...-50	-83.5...-50 (Note 1)	-84...-50
NOTE 1: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.2.2.

Table 8.7.2.2.2.4: CPICH Ec/Io Inter frequency tests parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-53.5	-53.5	-86.27	-86.27	-93.46	-93.46
	Band IX*				-85.27	-85.27	-92.46	-92.46
	Band II, V, VII				-84.27	-84.27	-91.46	-91.46
	Band XXV, XXVI				-82.77	-82.77	-89.96 (Note 2)	-89.96 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII				-83.27	-83.27	-90.46	-90.46
Ior/Ioc		dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24
CPICH Ec/Io, Note 1		dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm /3.84 MHz	-51.15	-51.15	-84.9	-84.9	-93	-93
	Band IX*				-83.9	-83.9	-92	-92
	Band II, V, VII				-82.9	-82.9	-91	-91
	Band XXV, XXVI				-81.4	-81.4	-89.5 (Note 2)	-89.5 (Note 2)
	Band III, VIII, XII, XIII, XIV,XX, XXII				-81.9	-81.9	-90	-90
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

The reported values for the relative inter frequency CPICH Ec/Io measurement shall meet the requirements in table 8.7.2.2.2.5.

Table 8.7.2.2.2.5: CPICH_Ec/Io Inter frequency relative accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value cell 2	CPICH_Ec/No_(x -5)	CPICH_Ec/No_(x - 6)	CPICH_Ec/No_(x - 10)
Highest reported value cell 2	CPICH_Ec/No_(x+5)	CPICH_Ec/No_(x + 6)	CPICH_Ec/No_(x +10)
Extreme Conditions			
Lowest reported value cell2	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 8)	CPICH_Ec/No_(x - 10)
Highest reported value cell2	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 8)	CPICH_Ec/No_(x + 10)
CPICH_Ec/No_x is the reported value of cell 1			

8.7.3   UTRA Carrier RSSI

NOTE: This measurement is for Inter-frequency handover evaluation.

8.7.3.1   Absolute measurement accuracy requirement

8.7.3.1.1   Definition and applicability

The absolute accuracy of UTRA Carrier RSSI is defined as the UTRA Carrier RSSI measured from one frequency compared to the actual UTRA Carrier RSSI power of that same frequency.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.3.1.2   Minimum Requirements

Table 8.7.3.1.1: UTRA Carrier RSSI Inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, XI, XIX, and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 4	± 7	-94...-70	-93...-70	-92…-70	-90.5...-70 (Note 1)	-91…-70
	dBm	± 6	± 9	-70...-50	-70...-50	-70…-50	-70...-50	-70…-50
NOTE 1: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.1.

8.7.3.1.3   Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.1.4   Method of test

8.7.3.1.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256".

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent.

UTRA Carrier RSSI absolute accuracy requirements are tested by using test parameters in table 8.7.3.1.2.

Table 8.7.3.1.2: UTRA Carrier RSSI Inter frequency absolute accuracy parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-52.22	-52.22	-70.27	-70.27	-94.46	-94.46
	Band IX*						-93.46	-93.46
	Band II, V, VII						-92.46	-92.46
	Band XXV, XXVI						-90.96 (Note 2)	-90.96 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91.46	-91.46
Ior/Ioc		dB	-1.75	-1.75	-4.7	-4.7	-9.54	-9.54
CPICH Ec/Io, Note 1		dBm	-14.0	-14.0	-16.0	-16.0	-20.0	-20.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50	-50	-69	-69	-94	-94
	Band IX*						-93	-93
	Band II, V, VII						-92	-92
	Band XXV, XXVI						-90.5 (Note 2)	-90.5 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91	-91
Propagation condition		-	AWGN		AWGN		AWGN	

NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.

*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.

NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.

8.7.3.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.3.1.2.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise, go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check UTRA carrier RSSI value of Channel 2 in MEASUREMENT REPORT messages. UTRA carrier RSSI power of Channel 2 reported by UE is compared to actual UTRA Carrier RSSI value of Channel 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according to table 8.7.3.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.3.1.2 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	Not Present	
- CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links		
-Downlink DPCH info common for all RL	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info		
-Transmission gap pattern sequence		
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	3	

Information Element	Value/Remark	Version
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity Mode	Not Present	
-SSDT information	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link		
-Choice mode	FDD	
-Primary CPICH info		
-Primary scrambling code	100	
-PDSCH with SHO DCH Info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement

Information Element	Value/Remark
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included.
-Cell for measurement	Not Present
-Inter-frequency measurement quantity	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	2
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.1.5 Test requirements

The UTRA Carrier RSSI absolute measurement accuracy shall meet the requirements in clause 8.7.3.1.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX and XXI, -98 dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV and XXVI) shall be added into the required accuracy defined in subclause 8.7.3.1.2 as shown in table 8.7.3.1.3.

Table 8.7.3.1.3: UTRA Carrier RSSI absolute accuracy, test requirements

Parameter	Unit	Accuracy [dB]					
		Normal condition			Extreme condition		
		Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
UTRA Carrier RSSI	dBm	± 7.15	± 5.1	-5…5.8	± 10.15	± 8.1	-8…8.8

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

Table 8.7.3.1.4: UTRA Carrier RSSI Inter frequency absolute accuracy test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15	-	-6	-	-6	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-2.56	-0.94	-2.56	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-53.5	-53.5	-69.27	-69.27	-93.46	-93.46
	Band IX*						-92.46	-92.46
	Band II, V, VII						-91.46	-91.46
	Band XXV, XXVI						-89.96 (Note 2)	-89.96 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-90.46	-90.46
Ior/Ioc		dB	-1.45	-1.45	-4.4	-4.4	-9.24	-9.24
CPICH Ec/Io, Note 1		dBm	-13.8	-13.8	-15.7	-15.7	-19.7	-19.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-51.15	-51.15	-67.9	-67.9	-93	-93
	Band IX*						-92	-92
	Band II, V, VII						-91	-91
	Band XXV, XXVI						-89.5 (Note 2)	-89.5 (Note 2)
	Band III, VIII, XII, XIII, XIV, XX, XXII						-90	-90
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for the UTRA Carrier RSSI absolute measurement shall meet the requirements in table 8.7.3.1.5.

Table 8.7.3.1.5: UTRA Carrier RSSI absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Normal Conditions			
Lowest reported value (Cell 2)	UTRA_carrier_RSSI_LEV_42	UTRA_carrier_RSSI_LEV_27	UTRA_carrier_RSSI_LEV_02
Highest reported value (Cell 2)	UTRA_carrier_RSSI_LEV_57	UTRA_carrier_RSSI_LEV_38	UTRA_carrier_RSSI_LEV_13
Extreme Conditions			
Lowest reported value (Cell 2)	UTRA_carrier_RSSI_LEV_39	UTRA_carrier_RSSI_LEV_24	UTRA_carrier_RSSI_LEV_00
Highest reported value (Cell 2)	UTRA_carrier_RSSI_LEV_60	UTRA_carrier_RSSI_LEV_41	UTRA_carrier_RSSI_LEV_16

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3.2 Relative measurement accuracy requirement

8.7.3.2.1 Definition and applicability

The relative accuracy requirement is defined as the UTRA Carrier RSSI measured from one frequency compared to the UTRA Carrier RSSI measured from another frequency.

The requirements and this test apply for Release 6 and later releases to all types of UTRA for the FDD UE.

8.7.3.2.2 Minimum Requirements

The accuracy requirements in table 8.7.3.2.1 are valid under the following condition:

$$|\text{Channel 1\_Io}|_{\text{dBm/3.84 MHz}} - |\text{Channel 2\_Io}|_{\text{dBm/3.84 MHz}} < 20\,\text{dB}.$$

Table 8.7.3.2.1: UTRA Carrier RSSI Inter frequency relative accuracy

Parameter	Unit	Accuracy [dB]		Conditions				
		Normal condition	Extreme condition	Band I, IV, VI, X, X,I XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
				Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]	Io [dBm/3.84 MHz]
UTRA Carrier RSSI	dBm	± 7	± 11	-94...-50	-93...-50	-92…-50	-90.5...-50 (Note 1)	-91…-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The normative reference for this requirement is TS 25.133 [2] clause 9.1.3.2.

8.7.3.2.3 Test purpose

The purpose of this test is to verify that the UTRA Carrier RSSI measurement is within the specified limits. This measurement is for inter-frequency handover evaluation.

8.7.3.2.4 Method of test

8.7.3.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case all cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, Set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". UTRA Carrier RSSI relative accuracy requirements are tested by using test parameters in table 8.7.3.2.1A. UTRA carrier RSSI measurements of neighbour cell 2 and neighbour cell 3 are reported to serving cell 1.

Table 8.7.3.2.1A: UTRA Carrier RSSI Inter frequency relative accuracy test parameters

Parameter		Unit	Test 1			Test 2			Test 3		
			Cell 1	Cell 2	Cell 3	Cell 1	Cell 2	Cell3	Cell 1	Cell 2	Cell 3
UTRA RF Channel number			Channel 1	Channel 2	Channel 3	Channel 1	Channel 2	Channel 3	Channel 1	Channel 2	Channel 3
CPICH_Ec/Ior		dB	-10			-10			-10		
PCCPCH_Ec/Ior		dB	-12			-12			-12		
SCH_Ec/Ior		dB	-12			-12			-12		
PICH_Ec/Ior		dB	-15			-15			-15		
DPCH_Ec/Ior		dB	-15	-	-	-6	-	-	-6	-	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-0.94	-2.56	-0.94	-0.94	-2.56	-0.94	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-52.23	-52.23	-71.23	-91.27	-91.27	-81.27	-94.45	-94.45	-75.45
	Band IX*								-93.45	-93.45	-74.45
	Band II, V, VII								-92.45	-92.45	-73.45
	Band XXV, XXVI								-90.95 (Note 3)	-90.95 (Note 3)	-71.95 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII								-91.45	-91.45	-72.45
Ior/Ioc		dB	-1.75	-1.75	-1.75	-4.7	-4.7	-4.7	-9.54	-9.54	-9.54
CPICH Ec/Io, Note 1		dBm	-14.0	-14.0	-14.0	-16.0	-16.0	-16.0	-20.0	-20.0	-20.0
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-50 (Note 2)	-50	-69	-90 (Note 2)	-90	-80	-94 (Note 2)	-94	-75
	Band IX*								-93 (Note 2)	-93	-74
	Band II, V, VII								-92 (Note 2)	-92	-73
	Band XXV, XXVI								-90.5 (Note 3)	-90.5 (Note 3)	-71.5 (Note 3)
	Band III, VIII, XII, XIII, XIV, XX, XXII								-91 (Note 2)	-91	-72
Propagation condition		-	AWGN			AWGN			AWGN		
NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.											
NOTE 2: Io levels are not reported by the UE on cell 1.											
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.											
NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.											
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose Cell 2 or Cell 3 in between the tests.											

The normative reference for this requirement is TS 25.133 [2] clause A.9.1.3.2.

8.7.3.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.3.2.3.

2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message. The SS shall wait 6.8 seconds to allow UE to be ready for inter frequency measurements.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check UTRA carrier RSSI value of Channel 2 and Channel 3 in MEASUREMENT REPORT messages. UTRA carrier RSSI power value measured from Channel 3 is compared to UTRA carrier RSSI power value measured from Channel 2 for each MEASUREMENT REPORT message.

7) The result of step 6) is compared to actual power level difference of UTRA Carrier RSSI of Channel 3 and Channel 2.

8) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

9) The RF parameters are set up according to table 8.7.3.2.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

10) The RF parameters are set up according to table 8.7.3.2.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 6), 7) and 8) above are repeated.

11) The SS shall transmit RRC CONNECTION RELEASE message.

12) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter frequency measurement (step 2):

Information Element	Value/Remark	Version
Message Type		
UE Information Elements -RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements -CN Information info	Not Present	
UTRAN mobility information elements -URA identity	Not Present	
RB information elements -Downlink counter synchronisation info	Not Present	
PhyCH information elements -Frequency info	Not Present	
Uplink radio resources -Maximum allowed UL TX power	Not Present	
- CHOICE channel requirement	Not Present	

Information Element	Value/Remark	Version
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links		
-Downlink DPCH info common for all RL	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info		
-Transmission gap pattern sequence		
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	3	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity Mode	Not Present	
-SSDT information	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link		
-Choice mode	FDD	
-Primary CPICH info		
-Primary scrambling code	100	
-PDSCH with SHO DCH Info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

MEASUREMENT CONTROL message for Inter frequency measurement (step 4):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 and Cell 3 information are included.
-Cell for measurement	Not Present
-Inter-frequency measurement quantity	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	3
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.3.2.5   Test requirements

The UTRA Carrier RSSI relative measurement accuracy shall meet the requirements in clause 8.7.3.2.2. The effect of assumed thermal noise and noise generated in the receiver (-99 dBm for Band I, IV, VI, X, XI, XIX and XXI, -98 dBm for Band IX, -97 dBm for Band II, V and VII, -96 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII, -95.5 dBm for Band XXV, XXVI) shall be added into the required accuracy defined in clause 8.7.3.2.2 as shown in table 8.7.3.2.2.

Table 8.7.3.2.2: UTRA Carrier RSSI relative accuracy, test requirements

Parameter	Unit	Accuracy [dB]					
		Normal condition			Extreme condition		
		Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
UTRA Carrier RSSI	dBm	± 7.9	± 8.8	± 8.9	± 11.9	± 12.8	± 12.9

Table 8.7.3.2.3: UTRA Carrier RSSI Inter frequency relative accuracy test parameters

Parameter		Unit	Test 1			Test 2			Test 3		
			Cell 1	Cell 2	Cell 3	Cell 1	Cell 2	Cell3	Cell 1	Cell 2	Cell 3
UTRA RF Channel number			Channel 1	Channel 2	Channel 3	Channel 1	Channel 2	Channel 3	Channel 1	Channel 2	Channel 3
CPICH_Ec/Ior		dB	-10			-10			-10		
PCCPCH_Ec/Ior		dB	-12			-12			-12		
SCH_Ec/Ior		dB	-12			-12			-12		
PICH_Ec/Ior		dB	-15			-15			-15		
DPCH_Ec/Ior		dB	-15	-	-	-6	-	-	-6	-	-
OCNS_Ec/Ior		dB	-1.11	-0.94	-0.94	-2.56	-0.94	-0.94	-2.56	-0.94	-0.94
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-53.50	-53.50	-71.23	-91.27	-91.27	-81.27	-93.45	-93.45	-74.45
	Band IX*								-92.45	-92.45	-73.45
	Band II, V, VII								-91.45	-91.45	-72.45
	Band XXV, XXVI								-89.95 (Note 3)	-89.95 (Note 3)	-70.95 (Note 3)
	Band III, VIII, XII, XIII, XIV,XX								-90.45	-90.45	-71.45
Ior/Ioc		dB	-1.45	-1.45	-1.45	-4.4	-4.4	-4.4	-9.24	-9.24	-9.24
CPICH Ec/Io, Note 1		dBm	-13.7	-13.7	-13.7	-15.7	-15.7	-15.7	-19.7	-19.7	-19.7
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-51.15 (Note 2)	-51.15	-69	-90 (Note 2)	-90	-80	-93 (Note 2)	-93	-74
	Band IX*								-92 (Note 2)	-92	-73
	Band II, V, VII								-91 (Note 2)	-91	-72
	Band XXV, XXVI								-89.5 (Note 3)	-89.5 (Note 3)	-70.5 (Note 3)
	Band III, VIII, XII, XIII, XIV,XX								-90 (Note 2)	-90	-71
Propagation condition		-	AWGN			AWGN			AWGN		

NOTE 1: CPICH Ec/Io and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.
NOTE 2: Io levels are not reported by the UE on cell 1.
*)   For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.
NOTE 3: The test parameter is modified by -1.5 dB when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose Cell 2 or Cell 3 in between the tests.

The frequency separation among 3 cells shall be at least 10 MHz to avoid overlapping the AWGN interference coming from different Ioc sources.

The reported values for the UTRA Carrier RSSI relative measurement shall meet the requirements in table 8.7.3.2.4.

Table 8.7.3.2.4: UTRA Carrier RSSI relative accuracy requirements for the reported values

	Test 1	Test 3	Test 3
Normal Conditions			
Lowest reported value (Cell 3)	UTRA_carrier_RSSI_LEV_(x – 26)	UTRA_carrier_RSSI_LEV_(x + 1)	UTRA_carrier_RSSI_LEV_(x + 10)
Highest reported value (Cell 3)	UTRA_carrier_RSSI_LEV_(x -10)	UTRA_carrier_RSSI_LEV_(x + 19)	UTRA_carrier_RSSI_LEV_(x + 28)
Extreme Conditions			
Lowest reported value (Cell 3)	UTRA_carrier_RSSI_LEV_ _(x – 30)	UTRA_carrier_RSSI_LEV_ _(x – 3)	UTRA_carrier_RSSI_LEV_ _(x + 6)
Highest reported value (Cell 3)	UTRA_carrier_RSSI_LEV_ _(x - 6)	UTRA_carrier_RSSI_LEV_ _(x + 23)	UTRA_carrier_RSSI_LEV_ _(x + 32)
UTRA_carrier_RSSI_LEV_x is the reported value of cell 2			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3A GSM Carrier RSSI

8.7.3A.1 Definition and applicability

The GSM carrier RSSI measurement is used for handover between UTRAN and GSM.

The requirements and this test apply to the combined FDD and GSM UE.

8.7.3A.2 Minimum Requirements

The UE shall meet the measurement accuracy requirements stated for RXLEV below, when the given measurement time allows the UE to take at least 3 GSM carrier RSSI samples per GSM carrier in the monitored set during the measurement period.

The absolute accuracy shall be as follows:

The R.M.S received signal level at the receiver input shall be measured by the UE and the BSS over the full range of -110 dBm to -48 dBm with an absolute accuracy of ±4 dB from -110 dBm to -70 dBm under normal conditions and ±6 dB over the full range under both normal and extreme conditions. The R.M.S received signal level at the receiver input shall be measured by the UE above -48 dBm up to -38 dBm with an absolute accuracy of ± 9 dB under both normal and extreme conditions.

If the received signal level falls below the reference sensitivity level for the type of UE or BSS, then the measured level shall be within the range allowing for the absolute accuracy specified above. In case the upper limit of this range is below the reference sensitivity level for the type of UE or BSS, then the upper limit shall be considered as equal to the reference sensitivity level.

The relative accuracy shall be as follows:

If signals of level x1 and x2 dBm are received (where x1 ≤ x2) and levels y1 and y2 dBm respectively are measured, if x2 - x1 < 20 dB and x1 is not below the reference sensitivity level, then y1 and y2 shall be such that:

(x2 - x1) - a ≤ y2 - y1 ≤ (x2 - x1 + b) if the measurements are on the same or on different RF channel within the same frequency band;

and

(x2 - x1) - c ≤ y2 - y1 ≤ (x2 - x1 + d) if the measurements are on different frequency bands:

a, b, c and d are in dB and depend on the value of x1 as follows:

	a	b	c	d
x1 ≥ s+14, x2< -48 dBm	2	2	4	4
s+14 > x1 ≥ s+1	3	2	5	4
s+1 > x1	4	2	6	4

For single band MS or BTS and measurements between ARFCN in the same band for a multiband

MS or BTS;

s = reference sensitivity level as specified in 3GPP TS 05.05 [28] for R99 and in 3GPP TS 45.005 [29] for Rel-4 and later releases.

For measurements between ARFCN in different bands;

s = the reference sensitivity level as specified in [28] and [29] for the band including x1.

At extreme temperature conditions an extra 2 dB shall be added to c and d in above table.

The selectivity of the received signal level measurement shall be as follows:

- for adjacent (200 kHz) channel ≥ 16 dB;

- for adjacent (400 kHz) channel ≥ 48 dB;

- for adjacent (600 kHz) channel ≥ 56 dB.

The selectivity shall be met using random, continuous, GSM-modulated signals with the wanted signal at the level 20 dB above the reference sensitivity level.

The reporting range and mapping specified for RXLEV in TS 05.08[20] for R99 and in TS 45.008 [30] for Rel-4 and later releases shall apply.

The rate of correct measurements observed during repeated tests shall be at least 90%.

The normative reference for this requirement is:

For R99: TS 25.133 [2] clause 8.1.2.5 and 9.1.4 and TS 05.08 [20] clause 8.1.2.

For Rel-4 and later releases: TS 25.133 [2] clause 8.1.2.5 and 9.1.4 and TS 45.008 [30] clause 8.1.2.

8.7.3A.3   Test purpose

The purpose of this test is to verify that the GSM Carrier RSSI measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform GSM measurements, is within the specified limits. This measurement is for UTRAN to GSM handover evaluation.

8.7.3A.4   Method of test

8.7.3A.4.1   Initial conditions

Test environment: normal, TL/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In the test in Cell_DCH state compressed mode with purpose "GSM Carrier RSSI Measurement" is applied to measure on GSM. The gap length is 7, detailed definition is in clause C.5, Set 2 of table C.5.2 except for TGPRC and TGCFN. TGPRC and TGCFN shall set to "'Infinity" and "(Current CFN + (256 − TTI/10msec))mod 256". Table 8.7.3A.1 defines the limits of signal strengths and code powers on the UMTS FDD cell, where the requirement is applicable. In the measurement control information it is indicated to the UE that periodic reporting of the GSM RSSI measurement.

The requirements are also applicable for a UE not requiring compressed mode, in which case no compressed mode pattern should be sent for the parameters specified in table 8.7.3A.1.

Table 8.7.3A.1: General GSM Carrier RSSI test parameters

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in section C.3.1
Power Control		On	
Target quality value on DTCH	**BLER**	**0.01**	
Compressed mode patterns - GSM carrier RSSI measurement		Compressed mode reference pattern 2 Set 2	As specified in table C.5.2 section C.5
Inter-RAT measurement quantity		GSM Carrier RSSI	
BSIC verification required		Not required	
Monitored cell list size		6 GSM neighbours	See Annex I for cell information Measurement control information is sent before the compressed mode patterns starts.

Table 8.7.3A.2: Cell specific GSM Carrier RSSI test parameters

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
Ior/Ioc	dB	-1
Ioc	dBm / 3.84 MHz	-70
Propagation condition	-	AWGN

Table 8.7.3A.3: Signal levels at receiver input in dBm

Step	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-38.5	-38.5	NA	NA	NA	NA
2	-48.5	-48.5	NA	NA	NA	NA
3	-70.5	-70.5	NA	NA	NA	NA
4	-109.5	-109.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

Table 8.7.3A.4: ARFCN numbers for GSM cells

GSM band	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
GSM 450	276	293	264	269	281	288
GSM 480	323	340	311	316	328	335
GSM 900 for FDD Band VIII(note1)	110	124	1	90	80	100
GSM 900 for FDD bands ≠ FDD Band VIII	62	124	20	40	80	100
DCS 1800 for FDD Band III and IX(Note2)	747	885	585	660	855	835
DCS 1800 for FDD bands ≠ FDD Band III and IX	700	885	585	660	790	835
PCS 1900 for FDD Band II(note3)	700	805	585	615	790	550
PCS 1900 for FDD bands ≠ FDD Band II	700	805	585	660	790	550
450/900	124	276	293	269	288	1
480/900	124	323	340	316	335	1
450/1800	885	276	293	269	288	512
480/1800	885	323	340	316	335	512
900/1800 for FDD Band VIII(Note1)	885	1	124	90	100	512
900/1800 for FDD bands ≠ FDD Band VIII	885	62	124	40	100	512
450/900/1800	124	276	885	293	1	512
480/900/1800	124	323	885	340	1	512
GSM 850 for FDD Band V, VI and XIX (Note4)	220	251	130	140	240	230
GSM 850 for FDD bands ≠ FDD Band V, VI and XIX	189	251	150	170	210	230
GSM 750	475	511	440	455	485	500
750/850	251	475	511	455	485	128

NOTE 1: The following BCCH ARFCN's specified for FDD Band VIII provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 3013.

NOTE 2: The following BCCH ARFCN's specified for FDD Band III and IX provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 1375 and 9312.

NOTE 3: The following BCCH ARFCN's specified for FDD Band II provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 9800.

NOTE 4: The following BCCH ARFCN's specified for FDD Band V, VI and XIX provide enough gap for a UMTS cell and its AWGN to be setup with centre frequency at UARFCN number 4400.

8.7.3A.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for cell 1 are set up according to table to table 8.7.3A.1 and 8.7.3A.2.

2) The RF parameters for two GSM cells are set up according to the step 1 in table 8.7.3A.5. The fading profile for the BCCHs will be set to static, see 51.010-1 [25]. The ARFCN numbers for GSM cells are set up according to table 8.7.3.A.4.

3) If compressed mode is required , SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 5.

4) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

5) SS shall transmit MEASUREMENT CONTROL message.

6) UE shall transmit periodically MEASUREMENT REPORT messages.

7) SS shall check GSM carrier RSSI value of the two GSM cells in MEASUREMENT REPORT messages. The GSM CARRIER RSSI values reported in the first measurement report are discarded. The SS records repeatedly GSM CARRIER RSSI values reported for the two BCCHs in each step. One report produces more than one mapped level or level difference. If the UE reports a value compliant with the applicable Table 8.7.3A.6 or 8.7.3A.7 or 8.7.3A.8 or 8.7.3A.9 then a success is recorded. Otherwise a failure is recorded. The successes and failures are assigned to the individual mapped levels or level differences. Repeat steps 7 according to Annex F.6.2 table 6.2.8. The repetition shall be continued, until the last mapped level or level difference experiences an early decision according to Annex F.6.2.

8) The RF parameters for two GSM cells are set up according to the next test step in table 8.7.3A.5.

9) Repeat procedure steps 7 and 8 until MEASUREMENT REPORT messages from the test step 12 of Table 8.7.3A.5 have been recorded.

Specific Message Contents

All messages indicated above shall use the same content as described in the system information in clause 6.1.0b of 34.108 [3] and in default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 3):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info (10.3.6.36)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	

Information Element	Value/Remark	Version
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	1	
- TGPSI	1	
- TGPS Status Flag	activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
-TGMP	GSM carrier RSSI measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	12	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity mode (10.3.6.86)	None	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list	1	
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL (10.3.6.21)		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message for Inter-RAT measurement (step 5):

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Measurement Information elements		
-Measurement Identity	2	
-Measurement Command (10.3.7.46)	Setup	
-Measurement Reporting Mode (10.3.7.49)		
-Measurement Report Transfer Mode	AM RLC	
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting	
-Additional measurements list (10.3.7.1)	Not Present	
-CHOICE Measurement type	Inter-RAT measurement	
-Inter-RAT measurement (10.3.7.27)		
-Inter-RAT measurement objects list (10.3.7.23)		
-CHOICE Inter-RAT cell removal	Remove no inter-RAT cells	
-New inter-RAT cells	6	
-Inter-RAT cell id	9+n (n=0 to 5)	
-CHOICE Radio Access Technology	GSM	
-Cell individual offset	0	
-Cell selection and re-selection info (10.3.2.4)	Not Present	
-BSIC (10.3.8.2)		
-Base transceiver Station Identity Code (BSIC)	BSIC(1+n) for n=0, 1 according to 34.108 [3] Table 6.1.10; for n=2 to 5 chosen arbitrarily by the test house such that it does not collide with BSICs of other Inter-RAT cell ids	
-Band indicator	According to PICS/PIXIT	
-BCCH ARFCN	BCCH(1+n) according to Table 8.7.3A.4	
-Cell for measurement	Not Present	
-Inter-RAT measurement quantity (10.3.7.29)		
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	Not Present	
-CHOICE system	GSM	
-Measurement quantity	GSM Carrier RSSI	
-Filter coefficient	0	
-BSIC verification required	not required	
-Inter-RAT reporting quantity (10.3.7.32)		
-UTRAN estimated quality	FALSE	
-CHOICE system	GSM	
-Observed time difference to GSM cell Reporting indicator	FALSE	R99 and Rel-4 only
-GSM carrier RSSI reporting indicator	TRUE	
-Reporting cell status (10.3.7.61)		
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT	
-Maximum number of reported cells	6	
-CHOICE report criteria	Periodical reporting criteria	
-Periodical reporting criteria (10.3.7.53)		
-Amount of reporting	Infinity	
-Reporting interval	500 ms	
Physical channel information elements		
-DPCH compressed mode status info (10.3.6.34)	Not Present	

MEASUREMENT REPORT message for inter– RAT test cases

This message is common for all inter-RAT test cases in clause 8.7 and is described in Annex I.

8.7.3A.5 Test requirements

Table 8.7.3A.5: Signal levels at receiver input in dBm, test parameters for test requirements

Step	BCCH1	BCCH2	BCCH3	BCCH4	BCCH5	BCCH6
1	-39.5	-39.5	NA	NA	NA	NA
2	-49.5	-49.5	NA	NA	NA	NA
3	-71.5	-71.5	NA	NA	NA	NA
4	-108.5	-108.5	NA	NA	NA	NA
5	-57.5	NA	-54.5	NA	NA	NA
6	-64.5	NA	-59.5	NA	NA	NA
7	-71.5	NA	NA	-64.5	NA	NA
8	-78.5	NA	NA	-69.5	NA	NA
9	-85.5	NA	NA	NA	-74.5	NA
10	-92.5	NA	NA	NA	-79.5	NA
11	-99.5	NA	NA	NA	NA	-84.5
12	-106.5	NA	NA	NA	NA	-89.5

For the UE preliminarily to pass the absolute requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.6: GSM Carrier RSSI absolute accuracy requirements for the reported values

Step	Normal		TL/VL & TH/VH	
	Lowest reported value for BCCH1	Highest reported value for BCCH1	Lowest reported value for BCCH1	Highest reported value for BCCH1
1	RXLEV = 61	RXLEV = 63	RXLEV = 61	RXLEV = 63
2	RXLEV = 54	RXLEV = 63	RXLEV = 54	RXLEV = 63
3	RXLEV = 34	RXLEV = 44	RXLEV = 32	RXLEV = 46
4	RXLEV = 00	RXLEV = 09	RXLEV = 00	RXLEV = 09
5	RXLEV = 46	RXLEV = 60	RXLEV = 46	RXLEV = 60
6	RXLEV = 39	RXLEV = 53	RXLEV = 39	RXLEV = 53
7	RXLEV = 34	RXLEV = 44	RXLEV = 32	RXLEV = 46
8	RXLEV = 27	RXLEV = 37	RXLEV = 25	RXLEV = 39
9	RXLEV = 20	RXLEV = 30	RXLEV = 18	RXLEV = 32
10	RXLEV = 13	RXLEV = 23	RXLEV = 11	RXLEV = 25
11	RXLEV = 06	RXLEV = 16	RXLEV = 04	RXLEV = 18
12	RXLEV = 00	RXLEV = 09	RXLEV = 00	RXLEV = 11
NOTE: It is not mandatory for the UE to report BCCH1 in step 12.				

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.7: GSM Carrier RSSI Relative accuracy requirements
for the reported values, measurements on different ARFCN within the same frequency band

Step	Normal & TL/VL & TH/VH	
	Lowest reported value for BCCH2	Highest reported value for BCCH2
1	No requirements	No requirements
2	RXLEV = x-4	RXLEV = x+4
3	RXLEV = x-4	RXLEV = x+4
4	RXLEV = x-6	RXLEV = x+4
	Lowest reported value for BCCH3	Highest reported value for BCCH3
5	RXLEV = x-1	RXLEV = x+7
6	RXLEV = x+1	RXLEV = x+9
	Lowest reported value for BCCH4	Highest reported value for BCCH4
7	RXLEV = x+3	RXLEV = x+11
8	RXLEV = x+5	RXLEV = x+13
	Lowest reported value for BCCH5	Highest reported value for BCCH5
9	RXLEV = x+7	RXLEV = x+15
10	RXLEV = x+8	RXLEV = x+17
	Lowest reported value for BCCH6	Highest reported value for BCCH6
11	RXLEV = x+10	RXLEV = x+19
12	RXLEV = x+11	RXLEV = x+21
	x is the reported value RXLEV for BCCH1	
NOTE:	It is not mandatory for the UE to report BCCH1 in step 12.	

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

Table 8.7.3A.8: GSM Carrier RSSI Relative accuracy requirements
for the reported values, measurements on different frequency bands

Step	Normal		TL/VL & TH/VH	
	Lowest reported value for BCCH2	Highest reported value for BCCH2	Lowest reported value for BCCH2	Highest reported value for BCCH2
1	No requirements	No requirements	No requirements	No requirements
2	RXLEV = x-6	RXLEV = x+6	RXLEV = x-8	RXLEV = x+8
3	RXLEV = x-6	RXLEV = x+6	RXLEV = x-8	RXLEV = x+8
4	RXLEV = x-8	RXLEV = x+6	RXLEV = x-10	RXLEV = x+8
	Lowest reported value for BCCH3	Highest reported value for BCCH3	Lowest reported value for BCCH3	Highest reported value for BCCH3
5	RXLEV = x-3	RXLEV = x+9	RXLEV = x-5	RXLEV = x+11
6	RXLEV = x-1	RXLEV = x+11	RXLEV = x-3	RXLEV = x+13
	Lowest reported value for BCCH4	Highest reported value for BCCH4	Lowest reported value for BCCH4	Highest reported value for BCCH4
7	RXLEV = x+1	RXLEV = x+13	RXLEV = x-1	RXLEV = x+15
8	RXLEV = x+3	RXLEV = x+15	RXLEV = x+1	RXLEV = x+17
	Lowest reported value for BCCH5	Highest reported value for BCCH5	Lowest reported value for BCCH5	Highest reported value for BCCH5
9	RXLEV = x+5	RXLEV = x+17	RXLEV = x+3	RXLEX = x+19
10	RXLEV = x+6	RXLEV = x+19	RXLEV = x+4	RXLEV = x+21
	Lowest reported value for BCCH6	Highest reported value for BCCH6	Lowest reported value for BCCH6	Highest reported value for BCCH6
11	RXLEV = x+8	RXLEV = x+21	RXLEV = x+6	RXLEV = x+23
12	RXLEV = x+9	RXLEV = x+23	RXLEV = x+7	RXLEV = x+25
	x is the reported value RXLEV for BCCH1			
NOTE:	It is not mandatory for the UE to report BCCH1 in step 12.			

For the UE preliminarily to pass the relative requirements of GSM Carrier RSSI measurement, at least 90% of the reported GSM Carrier RSSI measurements shall fulfil the following test requirements for each step and each test environment with a confidence level of 95%.

**Table 8.7.3A.9: GSM Carrier RSSI Relative accuracy requirements
for the reported values, measurements at single frequency (BCCH1)**

Step n	Step m	Normal & TL/VL & TH/VH	
		Lowest reported value for BCCH1 at step n	Highest reported value for BCCH1 at step n
5	6	RXLEV = x+3	RXLEV = x+11
5	7	RXLEV = x+10	RXLEV = x+18
6	7	RXLEV = x+3	RXLEV = x+11
6	8	RXLEV = x+10	RXLEV = x+18
7	8	RXLEV = x+3	RXLEV = x+11
7	9	RXLEV = x+10	RXLEV = x+18
8	9	RXLEV = x+3	RXLEV = x+11
8	10	RXLEV = x+9	RXLEV = x+18
9	10	RXLEV = x+2	RXLEV = x+11
9	11	RXLEV = x+9	RXLEV = x+18
10	11	RXLEV = x+2	RXLEV = x+11
10	12	RXLEV = x+8	RXLEV = x+18
11	12	RXLEV = x+1	RXLEV = x+11
x is the reported value of BCCH1 at step m			
NOTE: It is not mandatory for the UE to report BCCH1 in step 12.			

For the UE finally to pass, all preliminary decisions must be decided pass.

FFS: 3 test-environments * 12 reporting periods * 3 levels per report = 108 individual pass fail decisions

An individual pass/fail decision has a wrong decision risk of 5%. All individual decisions must pass, to pass the entire test. As a consequence a UE with marginal performance for each individual level will pass each individual test with a probability of 95%, but will fail the entire test with high probability. It is for further study whether to:

-   Accept this situation.

-   Decrease the wrong decision risk for each individual test at the expense of additional test time, to increase the pass probability for the entire test.

-   Introduce allowance to fail a limited number of individual tests.

8.7.3B Transport channel BLER

Void.

8.7.3C UE transmitted power (R99 and Rel-4 only)

8.7.3C.1 Definition and applicability

The UE transmitted power absolute accuracy is defined as difference between the UE reported value and the UE transmitted power measured by test system. The reference point for the UE transmitted power shall be the antenna connector of the UE.

The requirements and this test apply to the R99 and Rel-4 only FDD UE.

8.7.3C.2 Minimum requirements

The measurement period in CELL_DCH state is 1 slot.

Table 8.7.3C.2.1: UE transmitted power absolute accuracy

Parameter	Unit	Accuracy [dB]	
		PUEMAX 24dBm	PUEMAX 21dBm
UE reported power ≥ PUEMAX	dBm	+1/-3	±2
PUEMAX > UE reported power ≥ PUEMAX-1	dBm	+1.5/-3.5	±2.5
PUEMAX-1 > UE reported power ≥ PUEMAX-2	dBm	+2/-4	±3
PUEMAX-2 > UE reported power ≥ PUEMAX-3	dBm	+2.5/-4.5	±3.5
PUEMAX-3 > UE reported power ≥ PUEMAX-10	dBm	+3/-5	±4

NOTE 1: User equipment maximum output power, PUEMAX, is the maximum output power level without tolerance defined for the power class of the UE in TS 25.101 [1] section 6.2.1.

NOTE 2: UE transmitted power is the reported value.

For each empty slot created by compressed mode, no value shall be reported by the UE L1 for those slots.

The normative reference for this requirement is TS 25.133 [2] clause 9.1.6.

8.7.3C.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range PUEMAX to PUEMAX-10 that the actual UE mean power lies within the range specified in clause 8.7.3C.2.

8.7.3C.4 Method of test

8.7.3C.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect SS to the UE antenna connector as shown in figure A.1.

The test parameters are given in Table 8.7.3C.4.1 and 8.7.3C.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used.

Table 8.7.3C.4.1: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1
DL-Power Control		Off	

Table 8.7.3C.4.2: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_Ec/Ior	dB	-3
OCNS_Ec/Ior	dB	-5.2
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

8.7.3C.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.3C.4.1 and 8.7.3C.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.

2) SS shall send continuously during the entire test Up power control commands to the UE.

3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.

4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.

5) Measure the mean power of the UE over a period of one timeslot.

6) Steps 4 and 5 shall be repeated until statistical significance according to Annex F.6.2.8 is achieved.

7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.

8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.

9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX -10.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
-CHOICE Measurement type	UE Internal measurement
-UE Internal measurement quantity	
-Measurement quantity	UE Transmitted power
-Filter coefficient	0
-UE Internal reporting quantity	
-UE Transmitted power	TRUE
-CHOICE mode	FDD
-UE Rx-Tx time difference	FALSE
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250
-Measurement Reporting Mode	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-AdditionalMeasurementList	Not Present
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message:

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on PIXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	5
Measured Results	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is present
- UE Rx-Tx report entries	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION message:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	At the first time this value is set to PUEMAX-1. After the second time this value is decreased with 1 dB from previous value.	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and R4 only
-Downlink information common for all radio links	Not Present	
-Downlink information per radio link list	Not Present	

8.7.3C.5 Test requirements

Compare each of the UE transmitted power reports against the following mean power measurement. At least 90% of the mean power measurements for any one value of reported UE transmitted power shall be within the range specified in table 8.7.3C.5.

Table 8.7.3C.5: UE transmitted power test requirements

UE reported value	SS measured mean power (X) range [dBm]	
	PUEMAX 24dBm	PUEMAX 21dBm
UE_TX_POWER_104	$33\text{-}3.7 \leq X < 34\text{+}1.7$	$33\text{-}2.7 \leq X < 34\text{+}2.7$
UE_TX_POWER_103	$32\text{-}3.7 \leq X < 33\text{+}1.7$	$32\text{-}2.7 \leq X < 33\text{+}2.7$
•	•	•
•	•	•
•	•	•
UE_TX_POWER_097	$26\text{-}3.7 \leq X < 27\text{+}1.7$	•
UE_TX_POWER_096	$25\text{-}3.7 \leq X < 26\text{+}1.7$	•
UE_TX_POWER_095	$24\text{-}3.7 \leq X < 25\text{+}1.7$	•
UE_TX_POWER_094	$23\text{-}4.2 \leq X < 24\text{+}2.2$	$23\text{-}2.7 \leq X < 24\text{+}2.7$
UE_TX_POWER_093	$22\text{-}4.7 \leq X < 23\text{+}2.7$	$22\text{-}2.7 \leq X < 23\text{+}2.7$
UE_TX_POWER_092	$21\text{-}5.2 \leq X < 22\text{+}3.2$	$21\text{-}2.7 \leq X < 22\text{+}2.7$
UE_TX_POWER_091	$20\text{-}5.7 \leq X < 21\text{+}3.7$	$20\text{-}3.2 \leq X < 21\text{+}3.2$
UE_TX_POWER_090	$19\text{-}5.7 \leq X < 20\text{+}3.7$	$19\text{-}3.7 \leq X < 20\text{+}3.7$
UE_TX_POWER_089	$18\text{-}5.7 \leq X < 19\text{+}3.7$	$18\text{-}4.2 \leq X < 19\text{+}4.2$
UE_TX_POWER_088	•	$17\text{-}4.7 \leq X < 18\text{+}4.7$
UE_TX_POWER_087	•	$16\text{-}4.7 \leq X < 17\text{+}4.7$
UE_TX_POWER_086	•	$15\text{-}4.7 \leq X < 15\text{+}4.7$
•	•	•
•	•	•
•	•	•
UE_TX_POWER_022	$-49\text{-}5.7 \leq X < -48\text{+}3.7$	$-49\text{-}4.7 \leq X < -48\text{+}4.7$
UE_TX_POWER_021	$-50\text{-}5.7 \leq X < -49\text{+}3.7$	$-50\text{-}4.7 \leq X < -49\text{+}4.7$

NOTE 1: Although test requirements are given for all UE reported values, a good UE will likely report values between PUEMAX and PUEMAX - 10 dB. However, even a good UE may report also wider range of values due to errors in TPC command reception and allowed range specified for UE transmit power setting accuracy when Maximum Allowed UL TX Power has been signalled. On the other hand, a faulty UE may report any power value but then it does not fulfil the Table 8.7.3C.5 requirements for mean power or then it will not pass some other tests e.g. TC 5.2 of this specification.

NOTE 2: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.3D UE transmitted power (Rel-5 and later)

8.7.3D.1 Definition and applicability

The UE transmitted power absolute accuracy is defined as difference between the UE reported value and the UE transmitted power measured by test system. The reference point for the UE transmitted power shall be the antenna connector of the UE.

The requirements and this test apply to Release 5 and later releases for the FDD UE.

8.7.3D.2 Minimum requirements

This requirement is applicable in CELL_DCH state. The measured quantity is the transmitted power averaged over the longest period (excluding a 25 μs period either side of any expected composite power change) during which the nominal composite symbol power reaches the maximum during 1 DPCH slot interval.

The normative reference for this requirement is TS 25.133 [2] clause 9.1.6.

8.7.3D.3 Test purpose

The purpose of this test is to verify that for any reported value of UE Transmitted Power in the range specified in table 8.7.3D.5 that the actual UE mean power lies within the range specified in clause 8.7.3D.5.

8.7.3D.4 Method of test

8.7.3D.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect SS to the UE antenna connector as shown in figure A.1.

The test parameters are given in Table 8.7.3D.4.1 and 8.7.3D.4.2 below. In the measurement control information it shall be indicated to the UE that periodic reporting of the UE transmitted power measurement shall be used. The UE measured quantity absolute accuracy is defined in Table 8.7.3D.4.3.

Table 8.7.3D.4.1: General test parameters for UE transmitted power

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in clause C.3.1
DL-Power Control		Off	

Table 8.7.3D.4.2: Cell Specific parameters for UE transmitted power

Parameter	Unit	Cell 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_Ec/Ior	dB	-3
OCNS_Ec/Ior	dB	-5.2
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13
Propagation Condition		AWGN

Table 8.7.3D.4.3: UE transmitted power requirements

Reported value	Measured quantity value (dBm)	Accuracy (dB) note 1	
UE_TX_POWER _104	33 ≤ to < 34	note 2	
UE_TX_POWER _103	32 ≤ to < 33	note 2	
UE_TX_POWER _102	31 ≤ to < 32	note 2	
…	…		
UE_TX_POWER _096	25 ≤ to < 26	note 2	
UE_TX_POWER _095	24 ≤ to < 25	2.0	-2.0
UE_TX_POWER _094	23 ≤ to < 24	2.0	-2.0
UE_TX_POWER _093	22 ≤ to < 23	2.0	-2.0
UE_TX_POWER _092	21 ≤ to < 22	2.0	-2.0
UE_TX_POWER _091	20 ≤ to < 21	2.5	-2.5
UE_TX_POWER _090	19 ≤ to < 20	3.0	-3.0
UE_TX_POWER _089	18 ≤ to < 19	3.5	-3.5
UE_TX_POWER _088	17 ≤ to < 18	4.0	-4.0
UE_TX_POWER _087	16 ≤ to < 17	4.0	-4.0
UE_TX_POWER _086	15 ≤ to < 16	4.0	-4.0
UE_TX_POWER _085	14 ≤ to < 15	4.0	-4.0
UE_TX_POWER _084	13 ≤ to < 14	4.0*	-4.0 (note 3)
UE_TX_POWER _083	12 ≤ to < 13	4.0*	-4.0 (note 3)
UE_TX_POWER _082	11 ≤ to < 12	4.0*	-4.0 (note 3)
UE_TX_POWER _081	10 ≤ to < 11	note 2	
…	…		
UE_TX_POWER _023	-48 ≤ to < -47	note 2	
UE_TX_POWER _022	-49 ≤ to < -48	note 2	
UE_TX_POWER _021	-50 ≤ to < -49	note 2	
NOTE 1: The tolerance is specified for the maximum and minimum measured quantity value (dBm), i.e. MIN(Measured quantity value) + MIN(Accuracy) <= UE transmitted Power < Max (Measured quantity value) + MAX(Accuracy)			
NOTE 2: No tolerance is specified.			
NOTE 3: Applicable to power class 4			

8.7.3D.4.2   Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.3D.4.1 and 8.7.3D.4.2. Set the UE power and Maximum allowed UL TX power to the maximum power for the UE power class.

2) SS shall send continuously during the entire test Up power control commands to the UE.

3) SS shall transmit the MEASUREMENT CONTROL message as defined in the specific message contents below.

4) Decode the UE Transmitted power reported by the UE in the next available MEASUREMENT REPORT message.

5) Measure the mean power of the UE over the longest period (excluding a 25 µs period either side of any expected composite power change) during which the nominal composite symbol power reaches the maximum during one DPCH slot interval.

6) Steps 4 and 5 shall be repeated until statistical significance according to Annex F.6.2.8 is achieved.

7) Decrease the Maximum allowed UL TX power by 1 dB. The SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message, as defined in the specific message contents below.

8) SS shall wait for the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message from the UE.

9) Repeat from step 4) until the Maximum allowed UL TX Power reaches PUEMAX -10.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message:

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
-CHOICE Measurement type	UE Internal measurement
-UE Internal measurement quantity	
-Measurement quantity	UE Transmitted power
-Filter coefficient	0
-UE Internal reporting quantity	
-UE Transmitted power	TRUE
-CHOICE mode	FDD
-UE Rx-Tx time difference	FALSE
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250
-Measurement Reporting Mode	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-AdditionalMeasurementList	Not Present
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message:

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on PIXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	5
Measured Results	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is present
- UE Rx-Tx report entries	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

PHYSICAL CHANNEL RECONFIGURATION message:

Information Element	Value/Remark	Version
Message Type		
UE Information Elements	0	
-RRC transaction identifier		
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	At the first time this value is set to PUEMAX-1. After the second time this value is decreased with 1 dB from previous value.	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	
-Downlink information common for all radio links	Not Present	R99 and R4 only
-Downlink information per radio link list	Not Present	

8.7.3D.5 Test requirements

Compare each of the UE transmitted power reports against the following mean power measurement. At least 90% of the mean power measurements for any one value of reported UE transmitted power shall be within the range specified in table 8.7.3D.5.

Table 8.7.3D.5: UE transmitted power test requirements

Reported value	Measured quantity value (dBm)	Accuracy (dB) note 1	
UE_TX_POWER _104	33 ≤ to < 34	note 2	
UE_TX_POWER _103	32 ≤ to < 33	note 2	
UE_TX_POWER _102	31 ≤ to < 32	note 2	
…	…		
UE_TX_POWER _096	25 ≤ to < 26	note 2	
UE_TX_POWER _095	24 ≤ to < 25	2.7	-2.7
UE_TX_POWER _094	23 ≤ to < 24	2.7	-2.7
UE_TX_POWER _093	22 ≤ to < 23	2.7	-2.7
UE_TX_POWER _092	21 ≤ to < 22	2.7	-2.7
UE_TX_POWER _091	20 ≤ to < 21	3.2	-3.2
UE_TX_POWER _090	19 ≤ to < 20	3.7	-3.7
UE_TX_POWER _089	18 ≤ to < 19	4.2	-4.2
UE_TX_POWER _088	17 ≤ to < 18	4.7	-4.7
UE_TX_POWER _087	16 ≤ to < 17	4.7	-4.7
UE_TX_POWER _086	15 ≤ to < 16	4.7	-4.7
UE_TX_POWER _085	14 ≤ to < 15	4.7	-4.7
UE_TX_POWER _084	13 ≤ to < 14	4.7*	-4.7 (note 3)
UE_TX_POWER _083	12 ≤ to < 13	4.7*	-4.7 (note 3)
UE_TX_POWER _082	11 ≤ to < 12	4.7*	-4.7 (note 3)
UE_TX_POWER _081	10 ≤ to < 11	note 2	
…	…		
UE_TX_POWER _023	-48 ≤ to < -47	note 2	
UE_TX_POWER _022	-49 ≤ to < -48	note 2	
UE_TX_POWER _021	-50 ≤ to < -49	note 2	
NOTE 1: The tolerance is specified for the maximum and minimum measured quantity value (dBm), i.e. MIN(Measured quantity value) + MIN(Accuracy) <= UE transmitted Power < Max (Measured quantity value) + MAX(Accuracy) NOTE 2: No tolerance is specified. NOTE 3: Applicable to power class 4			

NOTE 1: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4 SFN-CFN observed time difference

8.7.4.1 Intra frequency measurement requirement

8.7.4.1.1 Definition and applicability

The intra frequency SFN-CFN observed time difference is defined as the SFN-CFN observed time difference from the active cell to a neighbour cell that is in the same frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.1.2 Minimum requirements

The accuracy requirement in table 8.7.4.1.1 is valid under the following conditions:

$CPICH\_RSCP1,2|_{dBm} \geq$ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

$CPICH\_RSCP1,2|_{dBm} \geq$ -113 dBm for Band IX,

$CPICH\_RSCP1,2|_{dBm} \geq$ -112 dBm for Bands II, V and VII,

$CPICH\_RSCP1,2|_{dBm} \geq$ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

$CPICH\_RSCP1,2|_{dBm} \geq$ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\ dBm} - \left. CPICH\_RSCP2 \right|_{in\ dBm} \leq 20 dB$$

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left(\frac{CPICH\_E_c}{I_{or}} \right)_{in\ dB} \leq 20 dB$$

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\ dB} - \left(\frac{P - CCPCH\_E_c}{I_{or}} \right)_{in\ dB} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.4.1.1: SFN-CFN observed time difference intra frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, and VIII, XII, XIII, XIV, XX and XXII
SFN-CFN observed time difference	chip	± 1	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.1 and A.9.1.4.2.

8.7.4.1.3 Test Purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.1.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.1.4 Method of test

8.7.4.1.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0…9830399 chips.

In this case all cells are in the same frequency. Table 8.7.4.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.4.1.2: SFN-CFN observed time difference Intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15		-15		-15	
OCNS_Ec/Ior		dB	-1.11		-1.11		-1.11	
Îor/Ioc		dB	10.5		10.5		10.5	
Ioc		dBm/ 3.84 MHz	Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1	
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50		-72		-94	
	Band IX*						-93	
	Band II, V, VII						-92	
	Band XXV, XXVI						-90.5 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91	
SFN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.4.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.4.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT message.

4) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. This value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved

6) The RF parameters are set up according to table 8.7.4.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

7) The RF parameters are set up according to table 8.7.4.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for intra frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	1
-Measurement Command	Modify
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Intra-frequency measurement
-Intra-frequency measurement	
- Intra-frequency measurement objects list	Not Present
-Intra-frequency measurement quantity	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity	CPICH RSCP
-Intra-frequency reporting quantity	
-Reporting quantities for active set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for monitored set cells	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting quantities for detected set cells	Not Present
-Reporting cell status	
-CHOICE reported cell	Report all active set cells + cells within monitored set on used frequency
-Maximum number of reported cells	Virtual/active set cells + 2
-Measurement validity	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Intra frequency test cases

This message is common for all intra frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.1.5   Test requirements

Table 8.7.4.1.3: SFN-CFN observed time difference intra frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-CFN observed time difference	chip	± 1.5	-94...-50	-93...-50	-92...-50	-90.5...-50	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

Table 8.7.4.1.4: SFN-CFN observed time difference Intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15		-15		-15	
OCNS_Ec/Ior		dB	-1.11		-1.11		-1.11	
Ior/Ioc		dB	10.8		10.8		10.8	
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-65.3		-85.7		-106.7	
	Band IX*						-105.7	
	Band II, V, VII						-104.7	
	Band XXV, XXVI						-103.2 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-103.7	
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-51.3		-71.7		-92.7	
	Band IX*						-91.7	
	Band II, V, VII						-90.7	
	Band XXV, XXVI						-89.2 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-89.7	
SFN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.1.5.

Table 8.7.4.1.5: SFN-CFN observed time difference measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)
Highest reported value	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)
SFN-CFN_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.1.4			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.4.2 Inter frequency measurement requirement

8.7.4.2.1 Definition and applicability

The inter frequency SFN-CFN observed time difference is defined as the SFN-CFN time difference from the active cell to a neighbour cell that is in a different frequency. This measurement is specified in clause 5.1.8 of TS 25.215 [22].

The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.4.2.2 Minimum requirements

The accuracy requirement in table 8.7.4.2.1 is valid under the following conditions:

CPICH_RSCP1,2$|_{dBm}$ ≥ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

CPICH_RSCP1,2$|_{dBm}$ ≥ -113 dBm for Band IX,

CPICH_RSCP1,2$|_{dBm}$ ≥ -112 dBm for Bands II, V and VII,

CPICH_RSCP1,2$|_{dBm}$ ≥ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

CPICH_RSCP1,2$|_{dBm}$ ≥ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\,dBm} - CPICH\_RSCP2 \Big|_{in\,dBm} \le 20 dB$$

| Channel 1_Io$|_{dBm/3.84\ MHz}$ -Channel 2_Io$|_{dBm/3.84\ MHz}$ | ≤ 20 dB.

$$\left. \frac{I_o}{(\hat{I}_{or})} \right|_{in\,dB} - \left. \left(\frac{CPICH\_E_c}{I_{or}} \right) \right|_{in\,dB} \le 20 dB$$

Table 8.7.4.2.1: SFN-CFN observed time difference inter frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-CFN observed time difference	chip	± 1	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.7.2 and A.9.1.4.2.

8.7.4.2.3 Test purpose

The purpose of this test is to verify that the SFN-CFN observed time difference measurement accuracy is within the specified limits in the clause 8.7.4.2.2. This measurement is for handover timing purposes to identify active cell and neighbour cell time difference.

8.7.4.2.4 Method of test

8.7.4.2.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0…9830399 chips.

In this test case both cells are on different frequencies.

For UEs that require compressed mode, compressed mode is applied. The gap length is 7, detailed definition is in clause C.5, set 1 of table C.5.2 except for TGRRC and TGCFN. TGPRC and TGCFN shall set to "Infinity" and "(Current CFN + (256 – TTI/10msec))mod 256". When compressed mode is in use, the OFF parameter will always be set to 0 as described in TS 25.215 clause 5.1.8

For UEs that do not require compressed mode, compressed mode is not applied and therefore no Physical Channel Reconfiguration message will be sent. In this case, the OFF parameter will be a measured value.

Table 8.7.4.2.2 defines the limits of signal strengths and code powers, where the requirement is applicable.

Table 8.7.4.2.2: SFN-CFN observed time difference Inter frequency tests parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15		-15		-15	
OCNS_Ec/Ior		dB	-1.11		-1.11		-1.11	
Ior/Ioc		dB	10.1		10.1		10.1	
Ioc		dBm/ 3.84 MHz	Io −10.6 dB = Ioc, Note 1		Io −10.6 dB = Ioc, Note 1		Io −10.6 dB = Ioc, Note 1	
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50		-72		-94	
	Band IX*						-93	
	Band II, V, VII						-92	
	Band XXV, XXVI						-90.5 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91	
S FN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: *Ioc* level shall be adjusted in each carrier frequency according the total signal power *Io* at receiver input and the geometry factor *Îor/Ioc*.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.4.2.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.4.2.4.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message. Otherwise go to step 4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check "OFF" and "Tm" values in MEASUREMENT REPORT message and calculate SFN-CFN observed time difference value according to the definition in clause 5.1.8 of TS 25.215 [22]. Note that according to TS 25.215 [22] UE will always report the "OFF" parameter as zero in the specific case where compressed mode is in use. In other cases, the "OFF" parameter will be a measured value. This should be taken into account when calculating the SFN-CFN observed time difference value. This calculated value shall be compared to the actual SFN-CFN observed time difference value for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according to table 8.7.4.2.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5), 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.4.2.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 5), 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement

Information Element	Value/Remark	Version
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	Not Present	
- CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links		
-Downlink DPCH info common for all RL	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info		
-Transmission gap pattern sequence		
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	FDD measurement	
-TGPRC	Infinity	
-TGSN	4	
-TGL1	7	
-TGL2	Not Present	
-TGD	UNDEFINED	

Information Element	Value/Remark	Version
-TGPL1	3	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity Mode	Not Present	
-SSDT information	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link		
-Choice mode	FDD	
-Primary CPICH info		
-Primary scrambling code	100	
-PDSCH with SHO DCH Info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

MEASUREMENT CONTROL message for Inter frequency measurement

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting

Information Element	Value/Remark
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included
-Cell for measurement	
-Inter-frequency measurement quantity	Inter-frequency reporting criteria
-CHOICE reporting criteria	
-Filter coefficient	0
-CHOICE mode	FDD
-Measurement quantity for frequency quality estimate	CPICH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	TRUE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	
-Cell synchronisation information reporting indicator	TRUE
-Cell Identity reporting indicator	TRUE
-CHOICE mode	FDD
-CPICH Ec/N0 reporting indicator	TRUE
-CPICH RSCP reporting indicator	TRUE
-Pathloss reporting indicator	FALSE
-Reporting cell status	
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	2
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements -DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message for Inter frequency test cases

This message is common for all inter frequency test cases in clause 8.7 and is described in Annex I.

8.7.4.2.5 Test requirements

Table 8.7.4.2.3: SFN-CFN observed time difference inter frequency accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-CFN observed time difference	chip	± 1.5	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

Table 8.7.4.2.4: SFN-CFN observed time difference Inter frequency tests parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 2	Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15		-15		-15	
OCNS_Ec/Ior		dB	-1.11		-1.11		-1.11	
Ior/Ioc		dB	10.4		10.4		10.4	
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-62.1		-82.6		-103.5	
	Band IX*						-102.5	
	Band II, V, VII						-101.5	
	Band XXV, XXVI						-100.0 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-100.5	
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-51.3		-71.8		-92.7	
	Band IX*						-91.7	
	Band II, V, VII						-90.7	
	Band XXV, XXVI						-89.2 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-89.7	
SFN-CFN observed time difference as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The accuracy of the SFN-CFN observed time difference measurement value calculated from the reported "OFF" and "Tm" values shall meet the requirements in table 8.7.4.2.5.

Table 8.7.4.2.5: SFN-CFN observed time difference measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)	SFN_CFN_TIME (X - 2)
Highest reported value	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)	SFN_CFN_TIME (X + 2)
SFN-CFN_TIME (X) is the reported value for the actual SFN-CFN observed time difference value as defined in table 8.7.4.2.4. Note that the "OFF" parameter is always set to zero in the specific case where compressed mode is in use.			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5 SFN-SFN observed time difference

8.7.5.1 SFN-SFN observed time difference type 1

8.7.5.1.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE.

8.7.5.1.2 Minimum requirements

The accuracy requirement in table 8.7.5.1.1 is valid under the following conditions:

CPICH_RSCP1,2$|_{dBm} \geq$ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

CPICH_RSCP1,2$|_{dBm} \geq$ -113 dBm for Band IX,

CPICH_RSCP1,2$|_{dBm} \geq$ -112 dBm for Bands II, V and VII,

CPICH_RSCP1,2$|_{dBm} \geq$ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

CPICH_RSCP1,2$|_{dBm} \geq$ -110.5 dBm for Band XXV, and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left| CPICH\_RSCP1 \right|_{in\,dBm} - CPICH\_RSCP2 \Big|_{in\,dBm} \leq 20dB$$

$$\left. \frac{I_o}{\left(\hat{I}_{or}\right)} \right|_{in\,dB} - \left(\frac{CPICH\_E_c}{I_{or}} \right)\Bigg|_{in\,dB} \leq 20dB$$

$$\left. \frac{I_o}{\left(\hat{I}_{or}\right)} \right|_{in\,dB} - \left(\frac{P-CCPCH\_E_c}{I_{or}} \right)\Bigg|_{in\,dB} \text{ is low enough to ensure successful SFN decoding.}$$

Table 8.7.5.1.1: SFN-SFN observed time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-SFN observed time difference type1	chip	± 1	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.1.1 and A.9.1.5.1.2.

8.7.5.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of SFN-SFN observed time difference type 1 is within the limit specified in clause 8.7.5.1.2. This measurement is for identifying time difference between two cells.

8.7.5.1.4 Method of test

8.7.5.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

During the test the timing difference between Cell 1 and 2 can be set to value from 0…9830399 chips.

1) Connect SS to the UE antenna connector as shown in figure A.14.

In this case all cells are in the same frequency. Table 8.7.5.1.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.1.2: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
S-CCPCH_Ec/Ior		dB	-12		-12		-12	
OCNS_Ec/Ior		dB	-1.29		-1.29		-1.29	
Îor/Ioc		dB	10.5		10.5		10.5	
Ioc		dBm/ 3.84 MHz	Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1	
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-50		-72		-94	
	Band IX*						-93	
	Band II, V, VII						-92	
	Band XXV, XXVI						-90.5 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-91	
SFN-SFN observed time difference type 1 as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: *Ioc* level shall be adjusted according the total signal power *Io* at receiver input and the geometry factor Îor/Ioc.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using the parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

8.7.5.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.5. The RF parameters for Test 1 are set up according to table 8.7.5.1.4.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT messages.

4) SS shall check "SFN-SFN observed time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual SFN-SFN observed time difference type 1 value for each MEASUREMENT REPORT message.

5) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according to table 8.7.5.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated

7) The RF parameters are set up according to table 8.7.5.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, step 4) and 5) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 6.1.0b of 34.108 [3] and clause 9 of 34.108 [3], with the following exceptions:

Contents of System Information Block type 11 (FDD) (Step 1):

Information Element	Value/Remark
- Intra-frequency measurement system information	
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	type 1
- CHOICE mode	FDD
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	current cell + best neighbour

MEASUREMENT CONTROL message for Traffic Volume measurement (Step 2):

Information Element/Group name	Value/Remark	
Message Type (10.2.17)		
UE information elements		
- RRC transaction identifier	0	
- Integrity check info		
- message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
- RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Measurement Information elements		
- Measurement Identity	4	
- Measurement Command (10.3.7.46)	Setup	
- Measurement Reporting Mode (10.3.7.49)		
- Measurement Report Transfer Mode	AM RLC	
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting	
- Additional measurements list (10.3.7.1)	Not Present	
- CHOICE Measurement type (10.3.7.68)	Traffic Volume measurement	
- Traffic volume measurement Object (10.3.7.70)		
- Traffic volume measurement objects	1	
- Uplink transport channel type	RACHorCPCH	R99 and Rel-4 only
- Uplink transport channel type	RACH	Rel-5
- UL Target Transport Channel ID	Not Present	
- Traffic volume measurement quantity (10.3.7.71)		
- Measurement quantity	RLC Buffer Payload	
- Time Interval to take an average or a variance	Not Present	
- Traffic volume reporting quantity (10.3.7.74)		
- RLC Buffer Payload for each RB	FALSE	
- Average of RLC Buffer Payload for each RB	FALSE	
- Variance of RLC Buffer Payload for each RB	FALSE	

Information Element/Group name	Value/Remark	
- Measurement validity (10.3.7.51)	Not Present	
- CHOICE report criteria (10.3.7.53)	Periodical reporting criteria	
- Amount of reporting	Infinity	
- Reporting interval	250 ms	
Physical channel information elements -DPCH compressed mode status info (10.3.6.34)	Not Present	

MEASUREMENT REPORT message for SFN-SFN observed time difference type 1 test case (Step 3)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	4
Measured Results	Checked that this IE is absent
Measured results on RACH	Checked that this IE is present
- Measurement result for current cell	Checked that this IE is present
- CHOICE mode	FDD
- CHOICE measurement quantity	Checked that this IE is present
- Measurement results for monitored cells	1
- SFN-SFN observed time difference	Checked that this IE is present
- CHOICE Type	Type 1
- CHOICE mode	FDD
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

8.7.5.1.5 Test requirements

Table 8.7.5.1.3: SFN-SFN observed time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-SFN observed time difference type1	chip	± 1.5	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

Table 8.7.5.1.4: SFN-SFN observed time difference type 1 Intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
S-CCPCH_Ec/Ior		dB	-12		-12		-12	
OCNS_Ec/Ior		dB	-1.29		-1.29		-1.29	
Ior/Ioc		dB	10.8		10.8		10.8	
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-65.3 dB		-85.7		-106.7	
	Band IX*						-105.7	
	Band II, V, VII						-104.7	
	Band XXV, XXVI						-103.2 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-103.7	
Io, Note 1	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-51.3		-71.7		-92.7	
	Band IX*						-91.7	
	Band II, V, VII						-90.7	
	Band XXV, XXVI						-89.2 (Note 2,3)	
	Band III, VIII, XII, XIII, XIV, XX, XXII						-89.7	
SFN-SFN observed time difference type 1 as specified in TS 25.215 [22]		chip	x Note 4					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: Io level has been calculated from other parameters for information purposes. It is not a settable parameter itself.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								
NOTE4: For example, x= 491520 or 9830399. This is a calculated value using the parameters "OFF" and "Tm" as specified in TS 25.215 [22].								
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.								

The reported values for SFN-SFN observed time difference type 1 accuracy shall meet the requirements in table 8.7.5.1.5.

Table 8.7.5.1.5: SFN-SFN observed time difference type 1 measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	T1_SFN-SFN_TIME_(X – 2)	T1_SFN-SFN_TIME_(X – 2)	T1_SFN-SFN_TIME_(X – 2)
Highest reported value	T1_SFN-SFN_TIME_(X + 2)	T1_SFN-SFN_TIME_(X + 2)	T1_SFN-SFN_TIME_(X + 2)
T1_SFN-SFN_TIME_(X) is the reporting value corresponding to SFN-SFN observed time difference type 1 measured by system simulator			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.5.2 SFN-SFN observed time difference type 2 without IPDL period active

NOTE: This test case is not complete and there are currently no plans to complete it.

8.7.5.2.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE supporting this measurement.

8.7.5.2.2 Minimum requirements

The accuracy requirement in table 8.7.5.2.1 is valid under the following conditions:

CPICH_RSCP1,2$|_{dBm}$ ≥ -114 dBm for Bands I, IV, VI, X, XI XIX and XXI,

CPICH_RSCP1,2$|_{dBm}$ ≥ -113 dBm for Band IX,

CPICH_RSCP1,2$|_{dBm}$ ≥ -112 dBm for Bands II, V and VII,

CPICH_RSCP1,2$|_{dBm}$ ≥ -111 dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

CPICH_RSCP1,2$|_{dBm}$ ≥ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left. \frac{I_o}{\left(\hat{I}_{or}\right)} \right|_{in\ dB} - \left. \left(\frac{CPICH\_E_c}{I_{or}}\right) \right|_{in\ dB} \le 20 dB$$

Table 8.7.5.2.1: SFN-SFN observed time difference type 2 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-SFN observed time difference type1	chip	± 0.5	-94...-50	-93...-50	-92...-50	-90.5...-50	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.2.1.

8.7.5.2.3 Test purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy without IPDL period active is within the limits specified in clause 8.7.5.2.2.

During the test the time difference between Cell 1 and 2 can be set to value from -1279.75 to 1280 chips.

In this case all cells are in the same frequency. Table 8.7.5.2.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.2.2: SFN-SFN observed time difference type 2 Intra frequency test parameters

Parameter		Unit	Cell 1	Cell 2
UTRA RF Channel number			Channel 1	Channel 1
CPICH_Ec/Ior		dB	-10	-10
PCCPCH_Ec/Ior		dB	-12	-12
SCH_Ec/Ior		dB	-12	-12
PICH_Ec/Ior		dB	-15	-15
DPCH_Ec/Ior		dB	-15	-15
OCNS		dB	-1.11	-1.11
Ior/Ioc		dB	10.5	10.5
Ioc		dBm/ 3.84 MHz	Io -13.7 dB = Ioc, Note 1	Io -13.7 dB = Ioc, Note 1
CPICH_Ec/Io, Note 4		dB	-13.2	-13.2
Range 1	Io	dBm/3.84 MHz	-94…-70 (Band I, IV, VI, X, XI, XIX, XXI) -93...-70 (Band IX*) -92…-70 (Band II, V, VII) -90.5...-70 (Band XXV, XXVI (Note 2)) -91…-70 (Band III, VIII, XII, XIII, XIV, XX, XXII)	94…-70 (Band I, IV, VI, X, XI, XIX, XXI) -93...-70 (Band IX*) -92…-70 (Band II, V, VII) -90.5...-70 (Band XXV, XXVI (Note 2)) -91…-70 (Band III, VIII, XII, XIII, XIV, XX, XXII)
Range 2			-94…-50 (Band I, IV, VI, X, XI, XIX, XXI) -93...-50 (Band IX*) -92…-50 (Band II, V, VII,) -90.5...-50 (Band XXV, XXVI (Note 3)) -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII)	-94…-50 (Band I, IV, VI, X, XI, XIX, XXI) -93...-50 (Band IX*) -92…-50 (Band II, V, VII) -90.5...-50 (Band XXV, XXVI (Note 3)) -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII)
Propagation condition		-	AWGN	
NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.				
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.				
NOTE 2: The condition is -92…-70 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.				
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.				
NOTE 4: Io and CPICH Ec/Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.				

8.7.5.3 SFN-SFN observed time difference type 2 with IPDL period active

Note: This test case is not complete and there are currently no plans to complete it.

8.7.5.3.1 Definition and applicability

This measurement is specified in clause 5.1.9 of TS 25.215 [22]. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.

The requirements and this test apply to all types of UTRA for the FDD UE supporting IPDL measurements.

8.7.5.3.2 Minimum requirements

The accuracy requirement in table 8.7.5.3.1 is valid under the following conditions:

$\text{CPICH\_RSCP1,2}|_{dBm} \geq -114$ dBm for Bands I, IV, VI, X, XI XIX and XXI,

$\text{CPICH\_RSCP1,2}|_{dBm} \geq -113$ dBm for Band IX,

$\text{CPICH\_RSCP1,2}|_{dBm} \geq -112$ dBm for Bands II, V and VII,

$\text{CPICH\_RSCP1,2}|_{dBm} \geq -111$ dBm for Band III, VIII, XII, XIII, XIV, XX and XXII,

CPICH_RSCP1,2|$_{dBm}$ ≥ -110.5 dBm for Band XXV and XXVI. (NOTE 1)

NOTE 1: The condition is -112 dBm when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.

$$\left.\frac{I_o}{\left(\hat{I}_{or}\right)}\right|_{in\ dB} - \left.\left(\frac{CPICH\_E_c}{I_{or}}\right)\right|_{in\ dB} \leq 20dB$$

Additionally the accuracy requirement in table 8.7.5.3.1 is also valid for neighbour cells for which the following conditions apply to during idle periods provided idle periods have a length of 1 slot:

CPICH_RSCPx,y|$_{dBm}$ ≥ -114 dBm.

$$\left.\frac{I_{o\_idle\_period}}{\left(\hat{I}_{or}\right)}\right|_{in\ dB} - \left.\left(\frac{CPICH\_E_c}{I_{or}}\right)\right|_{in\ dB} \leq 20dB,$$

where *x* and *y* represent cells measured using idle periods and I$_{o\_idle-period}$ is the total received power during the idle period.

NOTE: Additional general conditions are needed for the requirements in table 8.7.5.3.1 to be valid.

Table 8.7.5.3.1: SFN-SFN observed time difference type 2 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions Io [dBm/3.84 MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
SFN-SFN observed time difference type1	chip	± 0.5	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.8.2.2.

8.7.5.3.3 Test purpose and Environment

The purpose of this test is to verify that the SFN-SFN observed time difference type 2 measurement accuracy without IPDL period active is within the limits specified in clause 8.7.5.2.2.

During the test the time difference between Cell 1 and 2 shall be set according to the assistance data defined in table 8.7.5.3.3.

In this case all cells are in the same frequency. Table 8.7.5.3.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.5.3.2: SFN-SFN observed time difference type 2 Intra frequency test parameters

Parameter	Unit	Cell 1		Cell 2	
Time		No idle period	Idle period in Cell 1	No idle period	Idle period in Cell 1
UTRA RF Channel number		Channel 1	Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior	dB	-10	-10	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12	-12	-12
SCH_Ec/Ior	dB	-12	-12	-12	-12
PICH_Ec/Ior	dB	-15	-15	-15	-15
DPCH_Ec/Ior	dB	-15	-15	-	-
OCNS	dB	-1.11	-1.11	-0.94	-0.94
Ior/Ioc	dB	10.5	-24.5	-6	-6
Ioc	dBm/ 3.84 MHz	-80			
Io, Note 1	dBm/3.84 MHz	-69.04	-79.01	-69.04	-79.01
CPICH_Ec/Io, Note 1	dB	-10.46	-35.49	-26.96	-16.99

Parameter	Unit	Cell 1	Cell 2
Propagation condition	-	AWGN	
NOTE 1: Io and CPICH Ec/Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.			

When verifying the SFN-SFN observed time difference type 2 intra frequency measurement accuracy with IPDL period active the idle period parameters in table 8.7.5.3.3 shall be used.

Table 8.7.5.3.3: SFN-SFN observed time difference type 2 Intra frequency test parameters

Parameter	Unit	Cell 1
Search Window Size	Chips	80
IP_Status	-	Continuous
IP_Spacing	Frames	10
IP_Lenght	Symbols	10
IP_Offset	frame	NA
Seed	integer	13
Burst_Start		NA
Burst_Length		NA
Burst_Freq		NA

8.7.6 UE Rx-Tx time difference

8.7.6.1 UE Rx-Tx time difference type 1 (Release 5 and earlier)

8.7.6.1.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 5 and earlier releases.

8.7.6.1.2 Minimum requirements

Table 8.7.6.1.1: UE Rx-Tx time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
UE RX-TX time difference	chip	± 1.5	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.1.1 and A.9.1.6.1.2.

8.7.6.1.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference is within the limit specified in clause 8.7.6.1.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

8.7.6.1.4 Method of test

8.7.6.1.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect SS to the UE antenna connector as shown in figure A.1

Table 8.7.6.1.2: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter		Unit	Test 1	Test 2	Test 3
			Cell 1	Cell 1	Cell 1
UTRA RF Channel number			Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior		dB	-10	-10	-10
PCCPCH_Ec/Ior		dB	-12	-12	-12
SCH_Ec/Ior		dB	-12	-12	-12
PICH_Ec/Ior		dB	-15	-15	-15
DPCH_Ec/Ior		dB	-15	-15	-15
OCNS_Ec/Ior		dB	-1.11	-1.11	-1.11
Îor/Ioc		dB	10.5	10.5	10.5
Ioc		dBm/ 3.84 MHz	Io −10.9 dB = Ioc, Note 1	Io −10.9 dB = Ioc, Note 1	Io −10.9 dB = Ioc, Note 1
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-94	-72	-50
	Band IX*		-93		
	Band II, V, VII		-92		
	Band XXV, XXVI		-90.5 (Note 2)		
	Band III, VIII, XII, XIII, XIV, XX, XXII		-91		
Propagation condition		-	AWGN	AWGN	AWGN
NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.					
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.					
NOTE 2: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.					

8.7.6.1.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.6.1.4 for Test 1.

2) SS shall transmit MEASUREMENT CONTROL message.

3) UE shall transmit periodically MEASUREMENT REPORT message.

4) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

5) The RF parameters are set up according table 8.7.6.1.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

6) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved .

7) The RF parameters are set up according table 8.7.6.1.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

8) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

9) SS shall transmit RRC CONNECTION RELEASE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	5
-Measurement Command	SETUP
- Additional measurements list	Not Present
-Measurement Reporting Mode	
-Measurement Report Transfer Mode	AM RLC
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-CHOICE Measurement type	UE Internal measurement
-UE Internal measurement quantity	
-CHOICE mode	FDD
-Measurement quantity	UE Rx-Tx time difference
-Filter coefficient	0
-UE Internal reporting quantity	
-UE Transmitted power	FALSE
-CHOICE mode	FDD
-UE Rx-Tx time difference	TRUE
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	250
Physical channel information elements	
-DPCH compressed mode status info	Not Present

MEASUREMENT REPORT message

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	5
Measured Results	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is absent
- UE Rx-Tx report entries	
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	100
- UE Rx-Tx time difference type 1	Checked that this IE is present
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

8.7.6.1.5   Test requirements

Table 8.7.6.1.3 UE Rx-Tx time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
UE RX-TX time difference	chip	± 2.0	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

Table 8.7.6.1.4: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter		Unit	Test 1	Test 2	Test 3
			Cell 1	Cell 1	Cell 1
UTRA RF Channel number			Channel 1	Channel 1	Channel 1
CPICH_Ec/Ior		dB	-10	-10	-10
PCCPCH_Ec/Ior		dB	-12	-12	-12
SCH_Ec/Ior		dB	-12	-12	-12
PICH_Ec/Ior		dB	-15	-15	-15
DPCH_Ec/Ior		dB	-15	-15	-15
OCNS_Ec/Ior		dB	-1.11	-1.11	-1.11
Ior/Ioc		dB	10.5	10.5	10.5
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-103.6	-82.9	-62.2
	Band IX*		-102.6		
	Band II, V, VII		-101.6		
	Band XXV, XXVI		-100.1 (Note 2)		
	Band III, VIII, XII, XIII, XIV, XX, XXII		-100.6		

Parameter		Unit	Test 1	Test 2	Test 3
			Cell 1	Cell 1	Cell 1
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-92.7	-72	-51.3
	Band IX*		-91.7		
	Band II, V, VII		-90.7		
	Band XXV, XXVI		-89.2 (Note 2)		
	Band III, VIII, XII, XIII, XIV, XX, XXII		-89.7		
Propagation condition		-	AWGN	AWGN	AWGN
NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.					
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.					
NOTE 2: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.					

The reported values for UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1.5.

Table 8.7.6.1.5: UE Tx-Rx time difference type 1 measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	RX-TX_TIME_(X − 2)	RX-TX_TIME_(X − 2)	RX-TX_TIME_(X − 2)
Highest reported value	RX-TX_TIME_(X + 2)	RX-TX_TIME_(X + 2)	RX-TX_TIME_(X + 2)
RX-TX_TIME_(X) is the reporting value corresponding to UE Rx-Tx time difference measured by system simulator			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.6.1A UE Rx-Tx time difference type 1 (Release 6 and later)

8.7.6.1A.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The connection is started using Cell 1, and then Cell 2 is added to the active set so that Cell 1 is the timing reference. During the test the downlink DPCH time difference between Cell 1 and Cell 2 can be set to any value from -148 to +148 chips.

The requirements and this test apply to all types of UTRA for the FDD UE for Release 6 and later releases.

8.7.6.1A.2 Minimum requirements

Table 8.7.6.1A.1: UE Rx-Tx time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
UE RX-TX time difference	chip	± 1.5	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.1.1 and A.9.1.6.1.2.

8.7.6.1A.3 Test purpose

The purpose of this test is to verify that the measurement accuracy measured for Cell 2 of Rx-Tx time difference is within the limit specified in clause 8.7.6.1A.2. This measurement is used for call setup purposes to compensate propagation delay of DL and UL.

8.7.6.1A.4 Method of test

8.7.6.1A.4.1 Initial conditions

Test environment: normal; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect SS to the UE antenna connector as shown in figure A.1

Table 8.7.6.1A.2: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number			Channel 1		Channel 1		Channel 1	
Downlink DPCH timing		Chips	Timing Reference	Note 2	Timing Reference	Note 2	Timing Reference	Note 2
CPICH_Ec/Ior		dB	-10		-10		-10	
PCCPCH_Ec/Ior		dB	-12		-12		-12	
SCH_Ec/Ior		dB	-12		-12		-12	
PICH_Ec/Ior		dB	-15		-15		-15	
DPCH_Ec/Ior		dB	-15		-15		-15	
OCNS_Ec/Ior		dB	-1.11		-1.11		-1.11	
Îor/Ioc		dB	10.5		10.5		10.5	
Ioc		dBm/ 3.84 MHz	Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1		Io −13.7 dB = Ioc, Note 1	
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-94		-72		-50	
	Band IX*		-93					
	Band II, V, VII		-92					
	Band XXV, XXVI		-90.5 (Note 3)					
	Band III, VIII, XII, XIII, XIV, XX, XXII		-91					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*.								
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.								
NOTE 2: From reference timing -148 to reference timing +148								
NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

8.7.6.1A.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters are set up according to table 8.7.6.1A.4 for Test 1.

2) SS shall send an ACTIVE SET UPDATE message with activation time "now ", adding cell 2 to the active set.

3) SS shall transmit MEASUREMENT CONTROL message.

4) UE shall transmit periodically MEASUREMENT REPORT message.

5) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

6) The RF parameters are set up according table 8.7.6.1A.4 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

7) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved.

8) The RF parameters are set up according table 8.7.6.1A.4 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period.

9) SS shall check "UE Rx-Tx time difference type 1" value in MEASUREMENT REPORT message. The reported value shall be compared to actual UE Rx-Tx time difference value for each MEASUREMENT REPORT message. The "UE Rx-Tx time difference type 1" measurement is measured for Cell 2. The comparison should be repeated until statistical significance according to Annex F.6.2.8 is achieved .

10) SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

NOTE 1: Only one value from -148 to +148 chips need to be set during the test for the downlink DPCH time difference between Cell 1 and Cell 2.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3], with the following exceptions:

MEASUREMENT CONTROL message for Intra frequency measurement (Step 2):

Information Element	Value/Remark
Message Type	
UE information elements -RRC transaction identifier -Integrity check info -message authentication code	 0 SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.

Measurement Information elements
-Measurement Identity
-Measurement Command
- Additional measurements list
-Measurement Reporting Mode
 -Measurement Report Transfer Mode
 -Periodical Reporting / Event Trigger Reporting Mode
-CHOICE Measurement type
 -UE Internal measurement quantity
  -CHOICE mode
   -Measurement quantity
 -Filter coefficient
 -UE Internal reporting quantity
  -UE Transmitted power
  -CHOICE mode
   -UE Rx-Tx time difference
 -CHOICE report criteria
  -Amount of reporting
  -Reporting interval
	
	5
	SETUP
	Not Present
	
	AM RLC
	Periodical reporting
	UE Internal measurement
	
	FDD
	UE Rx-Tx time difference
	0
	
	FALSE
	FDD
	TRUE
	Periodical reporting criteria
	Infinity
	250

Physical channel information elements -DPCH compressed mode status info	 Not Present

MEASUREMENT REPORT message

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	5
Measured Results	
- CHOICE Measurement	UE Internal measured results
- Choice mode	FDD
- UE Transmitted power	Checked that this IE is absent
- UE Rx-Tx report entries	
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	100
- UE Rx-Tx time difference type 1	Checked that this IE is present
- UE Rx-Tx report entries	
- Primary CPICH info	Checked that this IE is present
- Primary scrambling code	150
- UE Rx-Tx time difference type 1	Checked that this IE is present
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent

8.7.6.1A.5   Test requirements

Table 8.7.6.1A.3: UE Rx-Tx time difference type 1 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
UE RX-TX time difference	chip	± 2.0	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

Table 8.7.6.1A.4: UE Rx-Tx time difference type 1 intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
Downlink DPCH timing	Chips	Timing Reference	Note 2	Timing Reference	Note 2	Timing Reference	Note 2
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15		-15		-15	
OCNS_Ec/Ior	dB	-1.11		-1.11		-1.11	
Ior/Ioc	dB	10.8		10.8		10.8	

Parameter		Unit	Test 1		Test 2		Test 3	
			Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
Ioc	Band I, IV, VI, X, XI, XIX, XXI	dBm/ 3.84 MHz	-106.7		-85.7		-65.3	
	Band IX*		-105.7					
	Band II, V, VII		-104.7					
	Band XXV, XXVI		-103.2 (Note 3)					
	Band III, VIII, XII, XIII, XIV, XX, XXII		-103.7					
Io	Band I, IV, VI, X, XI, XIX, XXI	dBm/3.84 MHz	-92.7		-71.7		-51.3	
	Band IX*		-91.7					
	Band II, V, VII		-90.7					
	Band XXV, XXVI		-89.2 (Note 3)					
	Band III, VIII, XII, XIII, XIV, XX, XXII		-89.7					
Propagation condition		-	AWGN		AWGN		AWGN	
NOTE 1: *Ioc* level shall be adjusted according the total signal power spectral density *Io* at receiver input and the geometry factor *Îor/Ioc*. *) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE. NOTE 2: From reference timing -148 to reference timing +148. NOTE 3: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.								

The reported values for UE Rx-Tx time difference accuracy shall meet the requirements in table 8.7.6.1A.5.

Table 8.7.6.1A.5: UE Tx-Rx time difference type 1 measurement accuracy requirements for the reported values

	Test 1	Test 2	Test 3
Lowest reported value	RX-TX_TIME_(X – 2)	RX-TX_TIME_(X – 2)	RX-TX_TIME_(X – 2)
Highest reported value	RX-TX_TIME_(X + 2)	RX-TX_TIME_(X + 2)	RX-TX_TIME_(X + 2)
RX-TX_TIME_(X) is the reporting value corresponding to UE Rx-Tx time difference measured by system simulator			

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.6.2 UE Rx-Tx time difference type 2

NOTE: This test case is not complete and there are currently no plans to complete it.

8.7.6.2.1 Definition and applicability

The UE Rx-Tx time difference is defined as the time difference between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time) of the downlink DPCH frame from the measured radio link. The reference point of the UE Rx-Tx time difference shall be the antenna connector of the UE. This measurement is specified in clause 5.1.10 of TS 25.215.

The requirements and this test apply to all types of UTRA for the FDD UE supporting this measurement.

8.7.6.2.2 Minimum requirements

Table 8.7.6.2.1: UE Rx-Tx time difference type 2 measurement accuracy

Parameter	Unit	Accuracy [chip]	Conditions				
			Io [dBm/3.84MHz]				
			Band I, IV, VI, X, XI, XIX and XXI	Band IX	Band II, V and VII	Band XXV and XXVI	Band III, VIII, XII, XIII, XIV, XX and XXII
UE RX-TX time difference	chip	± 1.0	-94...-50	-93...-50	-92...-50	-90.5...-50 (Note 1)	-91...-50
NOTE 1: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.							

The normative reference for this requirement is TS 25.133 [2] clause 9.1.9.2.1.

8.7.6.2.3 Test purpose

The purpose of this test is to verify that the measurement accuracy of Rx-Tx time difference type 2 is within the limit specified in clause 8.7.6.2.2.

The connection is started using cell 1, then cell 2 is added to the active set so that cell 1 is the timing reference. During the test the downlink DPCH time difference between Cell 1 and 2 can be set to any value from -148 to 148 chips.

Table 8.7.6.2.2 defines the limits of signal strengths and code powers, where the requirements are applicable.

Table 8.7.6.2.2: UE Rx-Tx time difference type 2 measurement parameters

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 1
Downlink DPCH timing	Chips	Timing reference	From reference timing −148 to reference timing+148
CPICH_Ec/Ior	dB	-10	-10
PCCPCH_Ec/Ior	dB	-12	-12
SCH_Ec/Ior	dB	-12	-12
PICH_Ec/Ior	dB	-15	-15
DPCH_Ec/Ior	dB	-15	-15
OCNS	dB	-1.11	-1.11
Îor/Ioc	dB	10.5	10.5
Ioc	dBm/3.84 MHz	Io −10.9 dB = Ioc, Note 1	Io-13.7 dB = Ioc, Note 1
Io	dBm/3.84 MHz	-94…-50 (Band I, IV, VI, X, XI, XIX, XXI) -93...-50 (Band IX*) -92…-50 (Band II, V, VII) -90.5...-50 (Band XXV, XXVI (Note 2)) -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII)	-94…-50 (Band I, IV, VI, X, XI, XIX, XXI) -93...-50 (Band IX*) -92…-50 (Band II, V, VII) -90.5...-50 (Band XXV, XXVI (Note 2)) -91…-50 (Band III, VIII, XII, XIII, XIV, XX, XXII)
Propagation condition	-	AWGN	
NOTE 1: Ioc level shall be adjusted according the total signal power spectral density Io at receiver input and the geometry factor Îor/Ioc.			
*) For the UE which supports both Band III and Band IX operating frequencies, the measurement performance requirements for Band III shall apply to the multi-band UE.			
NOTE 2: The condition is -92…-50 dBm/3.84 MHz when the carrier frequency of the assigned UTRA channel is within 869-894 MHz for the UE which supports both Band V and Band XXVI operating frequencies.			

8.7.7 Observed time difference to GSM cell (R99 and Rel-4 only)

Void

8.7.8   P-CCPCH RSCP

8.7.8.1   Absolute measurement accuracy

8.7.8.1.1   Definition and applicability

The absolute accuracy of P-CCPCH RSCP is defined as the P-CCPCH RSCP measured in an UTRA TDD cell on one frequency compared to the actual P-CCPCH RSCP power of that cell on the same frequency.

The requirements and this test apply only to UE supporting both UTRA FDD and UTRA TDD for Release 99 and Release 4 only.

8.7.8.1.2   Minimum Requirements

8.7.8.1.2.1   3.84Mcps TDD option

The accuracy requirement in table 8.7.8.1.1 is valid under the following conditions:

P-CCPCH_RSCP ≥ -102 dBm,

$$\left. \frac{I_o}{\left(\hat{I}_{or} \right)} \right|_{in\ dB} - \left(\frac{P - CCPCH \_ E_c}{I_{or}} \right) \right|_{in\ dB} \leq 8dB$$

Table 8.7.8.1.1: P-CCPCH RSCP inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	**Extreme conditions**	**Io [dBm/3.84 MHz]**
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

8.7.8.1.2.2   1.28Mcps TDD option

The accuracy requirement in table 9.31A is valid under the following conditions:

P-CCPCH RSCP ≥ -102 dBm

P-CCPCH Ec/Io ≥ -8 dB

Table 8.7.8.1.1A: P-CCPCH RSCP inter frequency absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions
		Normal conditions	**Extreme conditions**	**Io [dBm/1.28 MHz]**
P-CCPCH_RSCP	dBm	± 6	± 9	-94...-70
	dBm	± 8	± 11	-70...-50

The normative reference for this requirement is TS 25.133 [2] clauses 9.1.11.1 and A.9.1.8.

8.7.8.1.3   Test purpose

The purpose of this test is to verify that the P-CCPCH RSCP absolute measurement accuracy is within the specified limits.

8.7.8.1.4 Method of test

8.7.8.1.4.1 Initial conditions

8.7.8.1.4.1.1 3.84Mcps TDD option

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies. Cell 1 is a UTRA FDD cell and cell 2 is a 3.84Mcps TDD cell. The second Beacon timeslot shall be provided for cell 2 in timeslot 8. Compressed mode as specified in TS 25.101 [1] section A.5, set 3 of table A.22, is applied. TGPRC and TGCFN shall be set to "Infinity" and "(Current CFN + (256 − TTI/10msec)) mod 256". P-CCPCH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table 8.7.8.1.2.

Table 8.7.8.1.2: P-CCPCH RSCP inter frequency tests parameters

Parameter	Unit	Test 1			Test 2		
		Cell 1	Cell 2		Cell 1	Cell 2	
DL timeslot number		n.a.	0	8	n.a.	0	8
UTRA RF Channel number		Channel 2	Channel 1		Channel 2	Channel 1	
CPICH_Ec/Ior	dB	-10	n.a.		-10	n.a.	
P-CCPCH_Ec/Ior	dB	-12	-3	n.a.	-12	-3	n.a
SCH_Ec/Ior	dB	-12	-9		-12	-9	
SCH_t_{offset}		n.a.	5		n.a.	5	
PICH_Ec/Ior	dB	-15	n.a.	-3	-15	n.a.	-3
DPCH_Ec/Ior	dB	-15	n.a.		-15	n.a.	
OCNS_Ec/Ior	dB	-1.11	-3.12		-1.11	-3.12	
Ioc	dBm/3.84 MHz	-60	-57.7		-84	-84.7	
Ior/Ioc	dB	9.54	7		0	3	
P-CCPCH RSCP, Note 1	dBm	n.a.	-53.7	n.a.	n.a.	-84.7	n.a.
CPICH RSCP, Note 1	dBm	-60.46	n.a.		-94	n.a.	
Io, Note 1	dBm/3.84 MHz	-50	-50		-81	-80	
Propagation condition	-	AWGN			AWGN		
NOTE 1: P-CCPCH RSCP, CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves. Note that the transmit energy per PN chip for the SCH is averaged over the 256 chip duration when the SCH is present in the time slot.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed, test parameters for test 2 shall be set within 5 seconds so that the UE does not lose the Cell 2 in between the test.							

8.7.8.1.4.1.2 1.28Mcps TDD option

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

In this case both cells are on different frequencies. Cell 1 is a UTRA FDD cell and cell 2 is a 1.28Mcps TDD cell. The second Beacon timeslot shall be provided for cell 2 in timeslot 2. Compressed mode as specified in TS 25.101 [1] section A.5, set 3 of table A.22, is applied. TGPRC and TGCFN shall be set to "Infinity" and "(Current CFN + (256 − TTI/10msec)) mod 256". P-CCPCH RSCP inter frequency absolute accuracy requirements are tested by using test parameters in Table 8.7.8.1.2A.

Table 8.7.8.1.2A: P-CCPCH RSCP inter frequency tests parameters

Parameter	Unit	Test 1			Test 2		
		Cell 1	Cell 2		Cell 1	Cell 2	
DL timeslot number		n.a.	0	DwPTs	n.a.	0	DwPTs
UTRA RF Channel number		Channel 2	Channel 1		Channel 2	Channel 1	
CPICH_Ec/Ior	dB	-10	n.a.		-10	n.a.	
P-CCPCH_Ec/Ior	dB	-12	-3		-12	-3	
DwPCH _Ec/Ior	dB	n.a.		0	n.a.		0
PICH_Ec/Ior	dB	-15	n.a.	n.a.	-15	n.a.	n.a.
DPCH_Ec/Ior	dB	-15	n.a.	n.a.	-15	n.a.	n.a.
OCNS_Ec/Ior	dB	-1.11	-3		-1.11	-3	
Ioc		-60 dBm / 3.84 MHz	-57.7 dBm/1.28 MHz		-84 dBm/ 3.84 MHz	-84.7 dBm/1.28 MHz	
Ior/Ioc	dB	9.54	7		0	3	
P-CCPCH RSCP, Note 1	dBm	n.a.	-53.7		n.a.	-84.7	
CPICH RSCP, Note 1	dBm	-60.46	n.a.		-94	n.a.	
Io, Note 1		-50 dBm / 3.84 MHz	-50 dBm/1.28 MHz		-81 dBm/ 3.84 MHz	-80 dBm/1.28 MHz	
Propagation condition	-	AWGN			AWGN		
NOTE 1: P-CCPCH RSCP, CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed, test parameters for test 2 shall be set within 5 seconds so that the UE does not lose the Cell 2 in between the test.							

1) A call is set up according to the test procedure specified in TS 34.108 [3] clause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.8.1.2.

8.7.8.1.4.2 Procedure

1) SS shall transmit the PHYSICAL CHANNEL RECONFIGURATION message.

2) UE shall transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

3) SS shall transmit the MEASUREMENT CONTROL message.

4) UE shall transmit periodically MEASUREMENT REPORT messages.

5) SS shall check P-CCPCH RSCP values of Cell 2 in the MEASUREMENT REPORT messages. P-CCPCH RSCP power level of Cell 2 reported by the UE shall be compared to the actually set P-CCPCH RSCP value of Cell 2 for each MEASUREMENT REPORT message.

6) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Annex F.6.2.8 is achieved.

7) The RF parameters are set up according to table 8.7.8.1.2 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional 1s and ignore the MEASUREMENT REPORT messages during this period. Then, steps 4), 5) and 6) above are repeated.

8) The SS shall transmit RRC CONNECTION RELEASE message.

9) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in the default message content in clause 9 of 34.108 [3] and in Annex I, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for inter frequency measurement (Step 1):

Information Element	Value/Remark	Revision
Message Type		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	Not Present	
- CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE mode	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links		
-Downlink DPCH info common for all RL	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info		
-Transmission gap pattern sequence		
-TGPSI	1	
-TGPS Status Flag	Activate	
-TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
-Transmission gap pattern sequence configuration parameters		
-TGMP	TDD measurement	
-TGPRC	Infinity	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	UNDEFINED	
-TGPL1	11	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	Mode 0	
-ITP	Mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	Puncturing	
-Uplink compressed mode method	SF/2	
-Downlink frame type	A	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity Mode	Not Present	
-SSDT information	Not Present	R99 and Rel-4

Information Element	Value/Remark	Revision
		only
-Default DPCH Offset Value	Not Present	
-Downlink information per radio link list		
-Downlink information for each radio link		
-Choice mode	FDD	
-Primary CPICH info		
-Primary scrambling code	100	
-PDSCH with SHO DCH Info	Not Present	R99 and Rel-4 only
-PDSCH code mapping	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No code change	
-TPC combination index	0	
-SSDT Cell Identity	Not Present	R99 and Rel-4 only
-Closed loop timing adjustment mode	Not Present	
-SCCPCH Information for FACH	Not Present	

MEASUREMENT CONTROL message for inter frequency measurement (Step 3):

Information Element	Value/Remark
Message Type	
UE information elements	
-RRC transaction identifier	0
-Integrity check info	
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/leftmost bit of the bit string contains the most significant bit of the MAC-I.
-RRC message sequence number	SS provides the value of this IE, from its internal counter.
Measurement Information elements	
-Measurement Identity	2
-Measurement Command	Setup
-Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
-Additional measurement list	Not Present
-CHOICE Measurement Type	Inter-frequency measurement
-Inter-frequency measurement	
-Inter-frequency cell info list	
-CHOICE Inter-frequency cell removal	Not Present
-New inter-frequency cells	Cell 2 information is included.
-Cell for measurement	Not Present
-Inter-frequency measurement quantity	
-CHOICE reporting criteria	Inter-frequency reporting criteria
-Filter coefficient	0
-CHOICE mode	TDD
-Measurement quantity for frequency quality estimate	Primary CCPCH RSCP
-Inter-frequency reporting quantity	
-UTRA Carrier RSSI	FALSE
-Frequency quality estimate	TRUE
-Non frequency related cell reporting quantities	

Information Element	Value/Remark
-Cell synchronisation information reporting indicator	FALSE
-Cell Identity reporting indicator	
-CHOICE mode	FALSE
-Timeslot ISCP reporting indicator	TDD
-Proposed TGSN Reporting required	FALSE
-Primary CCPCH RSCP reporting indicator	FALSE
-Pathloss reporting indicator	TRUE
-Reporting cell status	FALSE
-CHOICE reported cell	Report cells within monitored set on non-used frequency
-Maximum number of reported cells	2
-Measurement validity	Not Present
-Inter-frequency set update	Not Present
-CHOICE report criteria	Periodical reporting criteria
-Amount of reporting	Infinity
-Reporting interval	500 ms
Physical channel information elements	
-DPCH compressed mode status info	Not Present

8.7.8.1.5 Test requirements

The PCCPCH RSCP measurement accuracy shall meet the requirements in clause 8.7.8.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.9 UE Transmission Power Headroom

8.7.9.1 Definition and applicability

The accuracy requirements for the UE transmission power headroom depends on the total power transmitted by the UE as defined in the functionality in section 9.2.5.3.2 of TS 25.321 [13], section 9.1.13.4 of TS 25.133 [2] and section 5.1.14 of TS 25.215 [22]. The requirements and this test apply to Release 6 and later releases for all types of UTRA for the FDD UE that support E-DCH and HSDPA.

8.7.9.2 Minimum Requirements

The UE transmission power headroom (UPH) is defined in section 5.1.14 of TS 25.215 [22] as the ratio of the maximum UE transmission power and the corresponding DPCCH code power, and shall be calculated as following:

$$UPH = P_{\max,tx} / P_{DPCCH}$$

where:

Pmax,tx = min {Maximum allowed UL TX Power, Pmax} is the UE maximum transmission power;

Maximum allowed UL TX Power is set by UTRAN and defined in [8];

Pmax is the UE nominal maximum output power according to the UE power class and specified in [1] table 6.1;

PDPCCH is the transmitted code power on DPCCH.

The accuracy requirements for UE transmission power headroom depends on the total power transmitted by the UE. Table 8.7.9.1 defines the accuracy of the measured quantity as defined in section 9.1.13.4 of TS 25.133 [2].

Table 8.7.9.1: UPH reporting accuracy

Total UE output power value (dBm)	UPH reporting accuracy(dB) (note 1)
25<= total output power <34	note 2
24<= total output power <25	±2.0
23<= total output power <24	±2.0
22<= total output power <23	±2.0
21<= total output power <22	±2.0
20<= total output power < 21	±2.5
19<= total output power <20	±3.0
18<= total output power <19	±3.5
17<= total output power <18	±4.0
16<= total output power <17	±4.0
15<= total output power <16	±4.0
14<= total output power <15	±4.0
13<= total output power <14	±4.0 (power class 4) ±6.0 (power class 3)
12<= total output power <13	±4.0 (power class 4) ±6.0 (power class 3)
11<= total output power <12	±4.0 (power class 4) ±6.0 (power class 3)
-50<= total output power <11	±6.0
Note 1 : UPH reporting accuracy is the difference between the UPH reported by the UE and the actual uplink power headroom Note 2 : No tolerance is specified.	

8.7.9.3   Test purpose

The purpose of this test case is to verify that the UE transmission power headroom measurement report accuracy is within the specified limits defined in section 9.1.13.4 of 25.133 [2] shown in table 8.7.9.1.

8.7.9.4   Method of test

8.7.9.4.1   Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: mid range; see clause G.2.4.

1) Connect the SS (node B emulator) to the UE antenna connector as shown in figure A.1.

2) The beta factors for E-DPCCH & HS-DPCCH, Reference E-TFCI index, and E-DCH configurations are set as in table 8.7.9.2.

Table 8.7.9.2: General test parameters for UE transmission power headroom

Parameter	Unit	Value	Comment
DL DCH configuration		DL Reference Measurement Channel 12.2 kbps	As specified in Annex C.3.1 of the present document
DL configuration		**DL Fixed Reference Channel (FRC H-Set 1, QPSK version)**	**As specified in Annex C.8.1.1 of the present document**
E-DCH TTI	ms	10	
E-DCH configuration		10 ms TTI E-DCH Transport Block Size Table 0 according to TS 25.321 [13] annex B.3.	
DL Power Control		Off	
Active cell		Cell 1	
βc		8	As specified in 34.108 section 9.2.1 RADIO BEARER SETUP message: AM or UM (Test Loop Mode1)
βd		15	As specified in 34.108 section 9.2.1 RADIO BEARER SETUP message: AM or UM (Test Loop Mode1)
βec/βc		5/15	
βed_ref/βc		5/15	
Ahs		5/15	$\Delta ACK = \Delta NACK = \Delta CQI$
Reference E-TFCI index		0 as per Table 0 according to TS 25.321 [13] annex B.3.	

3) The power levels and cell specific parameters are set as in table 8.7.9.3.

Table 8.7.9.3: Cell Specific parameters for UE transmission power headroom

Parameter	Unit	Cell 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DPCH_Ec/Ior	dB	-10
HS-SCCH_Ec/Ior	dB	-8
HS-PDSCH _Ec/Ior	dB	-3
E-AGCH_Ec/Ior	dB	DTX'd
E-HICH_Ec/Ior	dB	DTX'd
E-RGCH_Ec/Ior	dB	DTX'd
OCNS	dB	Note 1
$\hat{I}_{or}$	dBm/3.84 MHz	-70
NOTE 1: The power of the OCNS channel that is added shall make the total power from the cell to be equal to $I_{or.}$		

4) The UE is switched on.

5) An E-DCH call is set up according to TS 34.108 [3] 7.3.9 with the following exceptions in the RADIO BEARER SETUP message. These exceptions are derived from Table 8.7.9.2, and in addition allow the beta values to be set and each UL physical channel to be at constant power during the measurement.

Table 8.7.9.4: Contents of RADIO BEARER SETUP message: AM or UM (E-DCH and HSDPA)

Information Element	Value/Remark
Uplink DPCH info	
- Power Control Algorithm	Algorithm 2
- Δ_{ACK}	0, giving A_{hs} = 5/15
- Δ_{NACK}	0, giving A_{hs} = 5/15
- Ack-Nack repetition factor	3 (required for continuous HS-DPCCH signal)
E-DCH info	Uplink DPCH info
- E-DPCCH info	
- E-DPCCH/DPCCH power offset	0, giving A_{ec} = 5/15
- E-DPDCH info	
- Reference E-TFCIs	1 E-TFCI
- Reference E-TFCI	0
- Reference E-TFCI PO	0, giving A_{ed_ref} = 5/15
- Scheduling Information Configuration	
- Periodicity for Scheduling Info – no grant	10 ms
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	2 (required for continuous HS-DPCCH signal)
- Δ_{CQI}	0, giving A_{hs} = 5/15

8.7.9.4.2 Test procedure

1) The Scheduling Information configuration for the E-DCH indicates to the UE that it shall periodically report Scheduling Information, which contains UPH measurement every E-DCH TTI. During the test the system simulator shall not send any scheduling grant to the UE, and therefore the UE will not send any payload data on the E-DCH.

2) The SS shall set the UE DPCCH power to be between -11.1 dBm and -8 dBm for a power class 3 UE, or between -14.1 dBm and -11dBm for a power class 4 UE by using uplink power control.

3) The SS measures both the power transmitted by the UE on DPCCH and the total output power of the UE every time slot. The SS averages both the DPCCH output power and total output power of the UE over 100 ms.

4) The SS estimates the UE transmission power headroom as the difference between the maximum allowed uplink transmit power (P_{max}) and the average DPCCH power measured in step 3.

5) The SS notes the UE transmission power headroom value reported in the Scheduling Information.

6) The SS calculates the difference between the UE transmission power headroom value estimated in step 4 and the reported UE transmission power headroom noted in step 5. The SS notes this as the UE transmission power headroom accuracy, and compares it to the applicable limit according to the total output power measured in step 3.

7) If the UE transmission power headroom accuracy exceeds the value in Table 8.7.9.5 count a bad result, otherwise a good result with respect to the actually set TX power (DTX on E-DPDCH is not considered a bad result).

8) Repeat steps 3 to 7 in order to collect more good or bad results for the currently set power level. Continue the repetition, until statistical significance according to Annex F.6.2.8 is achieved.

9) The SS sends 5 up TPC commands at the frame boundary to bring the Tx power of the UE up by a nominal 1 dB step, then alternate UP/DOWN to maintain constant Tx power.

10) Repeat steps 3 through 9 and note the UE transmission power headroom accuracy for each UE total power value until the UE stops reporting UPH or does not give lower UPH values for 8 consecutive repetitions of steps 3 through 9. If the lowest reported UPH is UE_POWER_HEADROOM_13 or higher for a power class 3 UE, or UE_POWER_HEADROOM_14 or higher for a power class 4 UE, then count a bad result (DTX on E-DPDCH is not considered a bad result).

8.7.9.5 Test requirements

The UE transmission power headroom measurement report accuracy recorded in steps 6, 9 and 10 above shall meet the requirements in table 8.7.9.5. The rate of correct measurements observed during repeated tests shall be at least 90%. To pass the test, the UE transmission power headroom accuracy for each power level in the reporting range must pass. Once a power level is passed, no more results need be collected on this power level.

Table 8.7.9.5: Test requirement for UPH reporting accuracy

Total UE output power value (dBm)	UPH reporting accuracy(dB) (note 1)
25<= total output power <34	note 2
24<= total output power <25	±2.8
23<= total output power <24	±2.8
22<= total output power <23	±2.8
21<= total output power <22	±2.8
20<= total output power < 21	±3.3
19<= total output power <20	±3.8
18<= total output power <19	±4.3
17<= total output power <18	±4.8
16<= total output power <17	±4.8
15<= total output power <16	±4.8
14<= total output power <15	±4.8
13<= total output power <14	±4.8 (power class 4) ±6.8 (power class 3)
12<= total output power <13	±4.8 (power class 4) ±6.8 (power class 3)
11<= total output power <12	±4.8 (power class 4) ±6.8 (power class 3)
-50<= total output power <11	±6.8
NOTE 1: UPH reporting accuracy is the difference between the UPH reported by the UE and the actual uplink power headroom NOTE 2: No tolerance is specified.	

NOTE1:   If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.10 E-UTRAN FDD RSRP absolute accuracy

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.7.10.1 Definition and applicability

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN FDD RSRP absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN FDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN FDD UE for Rel.9 and later.

8.7.10.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRP measurements in CELL_DCH state shall be the same as the inter-frequency RSRP accuracy requirements in 3GPP TS36.133[34], as follows:

Cell specific reference signals are transmitted either from one, two or four antenna ports.

Conditions defined in TS 36.101 [37] clause 7.3 for reference sensitivity are fulfilled.

RSRP|dBm according to TS 36.133 [34] Annex B.3.3 for a corresponding Band

Table 8.7.10.2.1: E-UTRAN FDD RSRP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions'				
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 41, 26	Band 25	Bands 3, 8, 12, 13, 14, 17, 20, 22	Band 9, 42, 43
				Io	Io	Io	Io	Io
RSRP for Ês/Iot ≥ -6 dB	dBm	±6	±9	-121dBm/15kHz … -70dBm/ BW$_{Channel}$	-119dBm/15kHz … -70dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -70dBm/ BW$_{Channel}$	-118dBm/15kHz … -70dBm/ BW$_{Channel}$	-120dBm/15kHz … -70dBm/ BW$_{Channel}$
RSRP for Ês/Iot ≥ -6 dB	dBm	±8	±11	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$
NOTE 1: Io is assumed to have constant EPRE across the bandwidth.								

The normative reference for this requirement is TS 25.133 [2] clause 9.1.4a and A.9.1.10

8.7.10.3 Test purpose

The purpose of this test is to verify that the E-UTRAN FDD RSRP measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform E-UTRAN FDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN FDD handover evaluation.

8.7.10.4 Method of test

8.7.10.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: see table K.2 in Annex K.

In the test in Cell_DCH state compressed mode with purpose "E-UTRAN FDD RSRP Measurement" is applied to measure on E-UTRAN FDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in TS 25.101 annex A.5.

Tables 8.7.10.4.1.1 and 8.7.10.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where requirements are applicable. In the measurement control information periodic reporting of E-UTRAN FDD RSRP is indicated to the UE. The E-UTRAN FDD test parameters are given in Table 8.7.10.4.1.3.

Table 8.7.10.4.1.1: General test parameters for E-UTRAN FDD RSRP absolute accuracy tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	UTRA FDD cell
Neighbour cell		Cell 2	E-UTRA FDD cell
CP length of cell 2		normal	
Filter coefficient		0	L3 filtering is not used
Compressed mode patterns - E-UTRAN measurement		Compressed mode reference pattern 2 Set 5	As specified in table A.22 TS 25.101 section A.5
Inter-RAT measurement quantity		E-UTRAN FDD RSRP	
Monitored cell list size		1 E-UTRAN FDD neighbour cell	Measurement control information is sent before the compressed mode pattern starts.

**Table 8.7.10.4.1.2: UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRP absolute accuracy tests**

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm / 3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

**Table 8.7.10.4.1.3: E-UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRP absolute accuracy tests**

Parameter		Unit	Test 1	Test 2
BW$_{channel}$		MHz	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1			R.6 FDD	R.6 FDD
OCNG Pattern as defined in TS 36.133 A.3.2.1.2			OP.2 FDD	OP.2 FDD
PBCH_RA		dB	0	0
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA^{Note1}				
OCNG_RB^{Note1}				
N_{oc} ^{Note2}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-88.65	-117
	Bands 2, 5, 7 and 26 (Note 5)			-115
	Band 25			-113.5
	Bands 3, 8, 12, 13, 14, 20 and 22			-114
	Band 9			-116
$\hat{E}_s/I_{ot}$		dB	10	-4
RSRP^{Note3}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-78.65	-121
	Bands 2, 5, 7, and 26 (Note 5)			-119
	Band 25			-117.5
	Bands 3, 8, 12, 13, 14, 20 and 22			-118
	Band 9			-120
Io^{Note3}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24.	dBm/9 MHz	-50.45	-87.76
	Bands 2, 5, 7 and 26 (Note 5)			-85.76
	Band 25			-84.26
	Bands 3, 8, 12, 13, 14, 20 and 22			-84.76
	Band 9			-86.76
$\hat{E}_s/N_{oc}$		dB	10	-4
Propagation condition		-	AWGN	AWGN

NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

NOTE 5: For Band 26, the tests shall be performed with the assigned E-UTRA channel bandwidth within 865-894

8.7.10.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.10.5.2 and table 8.7.10.5.3.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN FDD RSRP is requested to the UE.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check E-UTRAN FDD RSRP value of Cell 2 in MEASUREMENT REPORT messages. E-UTRAN FDD RSRP power of Cell 2 reported by UE is compared to actual E-UTRAN FDD RSRP value of Cell 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.10.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION

Information Element	Value/remark	Comment	Condition
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- TGPSI	1		
- TGPS Status Flag	Activate		
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256		
- Transmission gap pattern sequence configuration parameters	1		
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		

- TGL2	Not Present		
- TGD	0		
- TGPL1	8		
- TGPL2	Not Present		
- RPP	mode 0		
- ITP	mode 0		
- CHOICE UL/DL Mode	UL and DL		
- Downlink compressed mode method	SF/2		
- Uplink compressed mode method	SF/2		
- Downlink frame type	B		
- DeltaSIR1	3.0		
- DeltaSIRAfter1	3.0		
- DeltaSIR2	Not Present		
- DeltaSIRAfter2	Not Present		
- N identify abort	Not Present		
- T Reconfirm abort	Not Present		
- TX Diversity mode	Not Present		
- SSDT information	Not Present		
- Default DPCH Offset Value	Not Present		
Downlink information for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Measurement Identity	2		
Measurement Reporting Mode			
- Periodical Reporting/Event Trigger Reporting Mode	Periodical reporting		
CHOICE Measurement type	Inter-RAT measurement		

- CHOICE Inter-RAT measurement objects	E-UTRA frequency list		
- New frequencies			
- E-UTRA carrier frequency	Downlink EARFCN of E-UTRA Cell		
- Measurement bandwidth	6		
- Inter-RAT reporting quantity			
- CHOICE system	E-UTRA		
- Reporting quantity	Measurement quantity		
- CHOICE report criteria	Periodical reporting criteria		
- Reporting amount	Infinity		
- Reporting interval	500 ms		
- Reporting cell status			
- CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT		
- Maximum number of reported cells	1		
DPCH Compressed mode status info	Not present		

MEASUREMENT REPORT message for inter-RAT test cases

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
Measurement identity	2		
E-UTRA Measured Results			
- E-UTRA measured results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present		
- Measured E-UTRA cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	
- RSRP	Checked that this IE is present		
- RSRQ	This IE does not need to be checked		
E-UTRA Event Results	Not present		

8.7.10.5 Test requirements

Table 8.7.10.5.2 and table 8.7.10.5.3 defines the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.10.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.10.5.1: Void

**Table 8.7.10.5.2: UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRP absolute accuracy tests**

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm / 3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN

NOTE 1: The DPCH level is controlled by the power control loop
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.

Table 8.7.10.5.3: E-UTRAN FDD cell specific test parameters for E-UTRAN FDD RSRP absolute accuracy tests

Parameter		Unit	Test 1	Test 2
BW$_{channel}$		MHz	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1			R.6 FDD	R.6 FDD
OCNG Pattern as defined in TS 36.133 A.3.2.1.2			OP.2 FDD	OP.2 FDD
PBCH_RA				
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB		dB	0	0
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA^{Note1}				
OCNG_RB^{Note1}				
N_{oc} ^{Note2}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-88.95	-117.00
	Bands 2, 5, 7 and 26 (Note 5)			-115.00
	Band 25			-113.50
	Bands 3, 8, 12, 13, 14, 17, 20 and 22			-114.00
	Band 9			-116.00
$\hat{E}_s/I_{ot}$		dB	10.00	-3.20
RSRP^{Note3}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-78.95	-120.20
	Bands 2, 5, 7 and 26 (Note 5)			-118.20
	Band 25			-116.70
	Bands 3, 8, 12, 13, 14, 17, 20 and 22			-117.20
	Band 9			-119.20
Io^{Note3}	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-50.75	-87.52
	Bands 2, 5, 7 and 26 (Note 5)			-85.52
	Band 25			-84.02
	Bands 3, 8, 12, 13, 14, 17, 20 and 22			-84.52
	Band 9			-86.52
$\hat{E}_s/N_{oc}$		dB	10.00	-3.20
Propagation condition		-	AWGN	AWGN
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.				

Parameter	Unit	Test 1	Test 2
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled. NOTE 3: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. NOTE 4: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port. NOTE 5: For Band 26, the tests shall be performed with the assigned E-UTRA channel bandwidth within 865-894			

Table 8.7.10.5.4: E-UTRAN FDD RSRP absolute accuracy requirements for the reported values

	Test 1	Test 2				
	All bands	Bands 1, 4, 6, 10, 11 18, 19, 21, 23, 24	Bands 2, 5, 7, 26	Band 25	Bands 3, 8, 12, 13, 14, 17, 20, 22	Band 9
Normal Conditions						
Lowest reported value (Cell 2)	RSRP_52	RSRP_13	RSRP_15	RSRP_17	RSRP_16	RSRP_14
Highest reported value (Cell 2)	RSRP_71	RSRP_28	RSRP_30	RSRP_31	RSRP_31	RSRP_29
Extreme Conditions						
Lowest reported value (Cell 2)	RSRP_49	RSRP_10	RSRP_12	RSRP_14	RSRP_13	RSRP_11
Highest reported value (Cell 2)	RSRP_74	RSRP_31	RSRP_33	RSRP_34	RSRP_34	RSRP_32

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.11 E-UTRAN TDD RSRP absolute accuracy

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.7.11.1 Definition and applicability

The absolute accuracy of RSRP is defined as the RSRP measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN TDD RSRP absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN TDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN TDD UE Release 9 and later.

8.7.11.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRP measurements in CELL_DCH state shall be the same as the inter-frequency RSRP accuracy requirements in 3GPP TS 36.133 [34], as follows:

- Cell specific reference signals are transmitted either from one, two or four antenna ports.

- Conditions defined in 36.101 Section 7.3 for reference sensitivity are fulfilled.

- RSRP|dBm according to 36.133 Annex B.3.3 for a corresponding Band

Table 8.7.11.2.1: E-UTRAN TDD RSRP absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions[1]

		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 41	Band 25	Bands 3, 8, 12, 13, 14, 17,20, 22	Band 9, 42, 43
				Io	Io	Io	Io	Io
RSRP for Ês/Iot ≥ -6 dB	dBm	±6	±9	-121dBm/15kHz … -70dBm/ BW$_{Channel}$	-119dBm/15kHz … -70dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -70dBm/ BW$_{Channel}$	-118dBm/15kHz … -70dBm/ BW$_{Channel}$	-120dBm/15kHz … -70dBm/ BW$_{Channel}$
RSRP for Ês/Iot ≥ -6 dB	dBm	±8	±11	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$	-70dBm/ BW$_{Channel}$ … -50dBm/ BW$_{Channel}$
NOTE 1: Io is assumed to have constant EPRE across the bandwidth.								

The normative reference for this requirement is TS 36.133 [34] clause 9.1.3.1.

8.7.11.3 Test purpose

The purpose of this test is to verify that the E-UTRAN TDD RSRP measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform E-UTRAN TDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN TDD handover evaluation.

8.7.11.4 Method of test

8.7.11.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: see table K.2 in Annex K.

In the test in Cell_DCH state compressed mode with purpose "E-UTRAN TDD RSRP Measurement" is applied to measure on E-UTRAN TDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in table A.22 in annex A.5 of 3GPP TS 25.101.

Tables 8.7.11.4.1.1 and 8.7.11.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where requirements are applicable. In the measurement control information periodic reporting of E-UTRAN TDD RSRP is indicated to the UE. The E-UTRAN TDD test parameters are given in Table 8.7.11.4.1.3.

Table 8.7.11.4.1.1: General test parameters for E-UTRAN TDD RSRP absolute accuracy tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in 3GPP TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	UTRA FDD cell
Neighbour cell		Cell 2	E-UTRA TDD cell
CP length of cell 2		normal	
Filter coefficient		0	L3 filtering is not used
Compressed mode patterns - E-UTRAN measurement		Compressed mode reference pattern 2 Set 5	As specified in table A.22 3GPP TS 25.101 section A.5
Inter-RAT measurement quantity		E-UTRAN TDD RSRP	
Monitored cell list size		1 E-UTRAN TDD neighbour cell	Measurement control information is sent before the compressed mode pattern starts.

Table 8.7.11.4.1.2: UTRAN FDD cell specific test parameters for E-UTRAN TDD RSRP absolute accuracy tests

Parameter	Unit	Cell 1

UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

Table 8.7.11.4.1.3: E-UTRAN TDD cell specific test parameters for E-UTRAN TDD RSRP absolute accuracy tests

Parameter		Unit	Test 1	Test 2
E-UTRA RF Channel Number			1	1
$BW_{channel}$		MHz	10	10
Special subframe configuration[Note1]			6	6
Uplink-downlink configuration[Note1]			1	1
Measurement bandwidth		n_{PRB}	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.2			R.6 TDD	R.6 TDD
OCNG Pattern as defined in TS 36.133 A.3.2.2.2			OP.2 TDD	OP.2 TDD
PBCH_RA		dB	0	0
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA[Note2]				
OCNG_RB[Note2]				
N_{oc} [Note3]	Bands 33 ~ 40	dBm/15 kHz	-88.65	-117.00
	Bands 42 and 43			-116.00
	Band 41			-115.00
$\hat{E}_s/I_{ot}$		dB	10	-4
RSRP[Note4]	Bands 33 ~ 40	dBm/15 kHz	-78.65	-121.00
	Bands 42 and 43			-120.00
	Band 41			-119.00
Io[Note4]	Bands 33 ~ 40	dBm/9 MHz	-50.45	-87.76
	Bands 42 and 43			-86.76
	Band 41			-85.76
$\hat{E}_s/N_{oc}$		dB	10.0	-4.0
Propagation condition		-	AWGN	AWGN
NOTE 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211.				
NOTE 2: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.				
NOTE 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.				
NOTE 4: RSRP and Io levels have been derived from other parameters for information				

> purposes. They are not settable parameters themselves.
> NOTE 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

8.7.11.4.2 Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to table 8.7.11.5.2 and table 8.7.11. 5.3.

2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN TDD RSRP is requested to the UE.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check E-UTRAN TDD RSRP value of Cell 2 in MEASUREMENT REPORT messages. E-UTRAN TDD RSRP power of Cell 2 reported by UE is compared to actual E-UTRAN TDD RSRP value of Cell 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS 36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.11.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The SS shall transmit RRC CONNECTION RELEASE message.

10) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info (10.3.6.36)	Not Present	

Information Element	Value/Remark	Version
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	1	
- TGPSI	1	
- TGPS Status Flag	activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
-TGMP	E-UTRA measurement	REL-8
-TGPRC	NA	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	0	
-TGPL1	8	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity mode (10.3.6.86)	None	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list	1	
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL (10.3.6.21)		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Measurement Information elements		
-Measurement Identity	2	
-Measurement Command (10.3.7.46)	Setup	
-Measurement Reporting Mode (10.3.7.49)		
-Measurement Report Transfer Mode	AM RLC	
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting	
-Additional measurements list (10.3.7.1)	Not Present	
-CHOICE Measurement type	Inter-RAT measurement	
-Inter-RAT measurement (10.3.7.27)		
-Inter-RAT cell info list (10.3.7.23)		
-CHOICE Inter-RAT cell removal	Remove no inter-RAT cells	
-New inter-RAT cells	1	
-Inter-RAT cell id	9	
-CHOICE Radio Access Technology		
-Cell for measurement	1	
....-E-UTRA frequency list (10.3.7.6b)		
......-CHOICE E-UTRA frequency removal	Remove no frequencies	
-New frequencies		
-E-UTRA carrier frequency	Integer(0..65535), according to TS 36.508 section 4.3.1.2	
-Measurement Bandwidth	50	
-Inter-RAT measurement quantity (10.3.7.29)		
-Measurement quantity for UTRAN quality estimate (10.3.7.38)	Not Present	
-CHOICE system	E-UTRA	REL-8
-Measurement quantity	RSRP	REL-8
-Filter coefficient	0	REL-8
-Inter-RAT reporting quantity (10.3.7.32)		
-UTRAN estimated quality	FALSE	
-CHOICE system	E-UTRA	REL-8
......Reporting quantity	measurement quantity	REL-8
-Reporting cell status (10.3.7.61)		
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT	
-Maximum number of reported cells	1	
-CHOICE report criteria	Periodical reporting criteria	
-Periodical reporting criteria (10.3.7.53)		
-Amount of reporting	Infinity	
-Reporting interval	500 ms	
Physical channel information elements		
-DPCH compressed mode status info (10.3.6.34)	Not Present	

MEASUREMENT REPORT message for inter-RAT test cases

This message is common for all inter-RAT test cases in clause 8.7 and is described in Annex I.

8.7.11.5 Test requirements

Table 8.7.11.5.2 and table 8.7.11.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.10.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.11.5.1: Void

Table 8.7.11.5.2: UTRAN FDD cell specific test parameters for E-UTRAN TDD RSRP absolute accuracy tests

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm / 3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

Table 8.7.11.5.3: E-UTRAN TDD cell specific test parameters for E-UTRAN TDD RSRP absolute accuracy tests

Parameter		Unit	Test 1	Test 2
E-UTRA RF Channel Number			1	1
BW$_{channel}$		MHz	10	10
Special subframe configuration^{Note1}			6	6
Uplink-downlink configuration^{Note1}			1	1
Measurement bandwidth		n_{PRB}	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.2			R.6 TDD	R.6 TDD
OCNG Pattern as defined in TS 36.133 A.3.2.2.2			OP.2 TDD	OP.2 TDD
PBCH_RA		dB	0	0
PBCH_RB				
PSS_RA				
SSS_RA				
PCFICH_RB				
PHICH_RA				
PHICH_RB				
PDCCH_RA				
PDCCH_RB				
PDSCH_RA				
PDSCH_RB				
OCNG_RA^{Note2}				
OCNG_RB^{Note2}				
N_{oc} ^{Note3}	Bands 33 ~ 40	dBm/15 kHz	-88.95	-117.00
	Bands 42 and 43			-116.00
	Band 41			-115.00
$\hat{E}_s/I_{ot}$		dB	10.00	-3.20
RSRP^{Note4}	Bands 33 ~ 40.	dBm/15 kHz	-78.95	-120.20
	Bands 42 and 43			-119.20
	Band 41			-118.20
Io^{Note4}	Bands 33 ~ 40	dBm/9 MHz	-50.75	-87.52
	Bands 42 and 43			-86.52
	Band 41			-85.52
$\hat{E}_s/N_{oc}$		dB	10.00	-3.20
Propagation condition		-	AWGN	AWGN

NOTE 1: For special subframe and uplink-downlink configurations see Tables 4.2-1 and 4.2-2 in 3GPP TS 36.211

NOTE 2: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

NOTE 3: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

NOTE 4: RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 5: RSRP minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

Table 8.7.11.5.4: E-UTRAN TDD RSRP absolute accuracy requirements for the reported values

	Test 1	Test 2		
	All bands	Bands 33 ~ 40	Bands 42 and 43	Band 41
Normal Conditions				
Lowest reported value (Cell 2)	RSRP_52	RSRP_13	RSRP_14	RSRP_15
Highest reported value (Cell 2)	RSRP_71	RSRP_28	RSRP_29	RSRP_30
Extreme Conditions				
Lowest reported value (Cell 2)	RSRP_49	RSRP_10	RSRP_11	RSRP_12
Highest reported value (Cell 2)	RSRP_74	RSRP_31	RSRP_32	RSRP_33

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.12 E-UTRAN FDD RSRQ absolute accuracy

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.7.12.1 Definition and applicability

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN FDD RSRQ absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN FDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN FDD UE for Rel.9 and later.

8.7.12.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRQ measurements in CELL_DCH state shall be the same as the inter-frequency RSRQ accuracy requirements in 3GPP TS 36.133[34], as follows:

- Cell specific reference signals are transmitted either from one, two or four antenna ports.

- Conditions defined in TS 36.101 [37] clause 7.3 for reference sensitivity are fulfilled.

- RSRP|dBm according to TS 36.133 Annex B.3.3 [34] for a corresponding Band.

Table 8.7.12.2.1: E-UTRAN FDD RSRQ absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions'				
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 41, 26	Band 25	Bands 3, 8, 12, 13, 14, 17, 20, 22	Bands 9, 42, 43
				Io	Io	Io	Io	Io
RSRQ when RSRP Ês/Iot > -3 dB	dBm	± 2.5	± 4	-121dBm/15kHz … -50dBm/ BW$_{Channel}$	-119dBm/15kHz … -50dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -50dBm/ BW$_{Channel}$	-118dBm/15kHz … -50dBm/ BW$_{Channel}$	-120dBm/15kHz … -50dBm/ BW$_{Channel}$
RSRQ when RSRP Ês/Iot ≥ -6 dB	dBm	± 3.5	± 4	-121dBm/15kHz … -50dBm/ BW$_{Channel}$	-119dBm/15kHz … -50dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -50dBm/ BW$_{Channel}$	-118dBm/15kHz … -50dBm/ BW$_{Channel}$	-120dBm/15kHz … -50dBm/ BW$_{Channel}$
NOTE: Io is assumed to have constant EPRE across the bandwidth.								

The normative reference for this requirement is TS 25.133 [2] clause 9.1.4b and A.9.1.12.

8.7.12.3 Test purpose

The purpose of this test is to verify that the E-UTRAN FDD RSRQ measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform E-UTRAN FDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN FDD handover evaluation.

8.7.12.4 Method of test

8.7.12.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: see table K.2 in Annex K

In the test in Cell_DCH state compressed mode with purpose "E-UTRAN FDD RSRQ Measurement" is applied to measure on E-UTRAN FDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in TS 25.101 annex A.5.

Tables 8.7.12.4.1.1 and 8.7.12.4.1.2 define the limits of signal strengths and code powers on the UTRA FDD cell where the UTRA Carrier RSSI absolute accuracy requirements are applicable. In the measurement control information periodic reporting of E-UTRAN FDD RSRQ is indicated to the UE. The E-UTRAN FDD test parameters are given in Table 8.7.12.4.1.3.

Table 8.7.12.4.1.1: General test parameters for E-UTRAN FDD RSRQ absolute accuracy tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	UTRA FDD cell
Neighbour cell		Cell 2	E-UTRA FDD cell
CP length of cell 2		normal	
Filter coefficient		0	L3 filtering is not used
Compressed mode patterns - E-UTRAN measurement		Compressed mode reference pattern 2 Set 5	As specified in table A.22 TS 25.101 section A.5
Inter-RAT measurement quantity		E-UTRAN FDD RSRQ	
Monitored cell list size		1 E-UTRAN FDD neighbour cell	Measurement control information is sent before the compressed mode pattern starts.

**Table 8.7.12.4.1.2: UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRQ absolute accuracy tests**

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

**Table 8.7.12.4.1.3: E-UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRQ absolute accuracy tests**

Parameter		Unit	Test 1	Test 2	Test 3
$BW_{channel}$		MHz	10	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133[34] A.3.1.2.1			R.6 FDD	R.6 FDD	R.6 FDD
OCNG Pattern as defined in TS 36.133[34] A.3.2.1.2			OP.2 FDD	OP.2 FDD	OP.2 FDD
PBCH_RA					
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA		dB	0	0	0
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note1]					
OCNG_RB[Note1]					
N_{oc}[Note2]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24.	dBm/15 kHz	-80	-104.70	-119.50
	Bands 2, 5, 7 and 26 (Note 5)				-117.50
	Band 25				-116.00
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-116.50
	Band 9				-118.50
$\hat{E}_s/I_{ot}$		dB	-1.75	-4.0	-4.0
RSRP[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-81.75	-108.70	-123.50
	Bands 2, 5, 7 and 26 (Note 5)				-121.50
	Band 25				-120
	Bands 3, 8, 12, 13, 14, 17, 2 and 0 22				-120.50
	Band 9				-122.50

Parameter		Unit	Test 1	Test 2	Test 3
RSRQ[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dB	-14.76	-16.25	-16.25
	Bands 2, 5, 7 and 26 (Note 5)				
	Band 25				
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				
	Band 9				
Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-50	-75.46	-90.26
	Bands 2, 5, 7and 26 (Note 5)				-88.26
	Band 25				-86.76
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-87.26
	Band 9				-89.26
$\hat{E}_s/N_{oc}$		dB	-1.75	-4.0	-4.0
Propagation condition		-	AWGN	AWGN	AWGN

NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

NOTE 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

NOTE 5: For Band 26, the tests shall be performed with the assigned E-UTRA channel bandwidth within 865-894

8.7.12.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to tables 8.7.12.5.2 and 8.7.12. 5.3.

2) If compressed mode is required, SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message (compressed gaps). Otherwise, Go to Step4.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (compressed gaps).

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN FDD RSRQ is requested to the UE.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check E-UTRAN FDD RSRQ value of Cell 2 in MEASUREMENT REPORT messages. The E-UTRAN FDD RSRQ value of Cell 2 reported by UE is compared to actual E-UTRAN FDD RSRQ value of Cell 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.12. 5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.12. 5.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-5: PHYSICAL CHANNEL RECONFIGURATION			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Downlink information common for all radio links			
- Downlink DPCH info common for all RL	Not Present		
- DPCH compressed mode info			
- TGPSI	1		
- TGPS Status Flag	Activate		
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256		
- Transmission gap pattern sequence configuration parameters	1		
- TGMP	E-UTRA measurement		
- TGPRC	Infinity		
- TGSN	10		
- TGL1	10		
- TGL2	Not Present		
- TGD	0		
- TGPL1	8		
- TGPL2	Not Present		
- RPP	mode 0		
- ITP	mode 0		
- CHOICE UL/DL Mode	UL and DL		
- Downlink compressed mode method	SF/2		
- Uplink compressed mode method	SF/2		
- Downlink frame type	B		
- DeltaSIR1	3.0		
- DeltaSIRAfter1	3.0		
- DeltaSIR2	Not Present		
- DeltaSIRAfter2	Not Present		
- N identify abort	Not Present		
- T Reconfirm abort	Not Present		
- TX Diversity mode	Not Present		
- SSDT information	Not Present		
- Default DPCH Offset Value	Not Present		
Downlink information for each radio link	Not Present		
MBMS PL Service Restriction Information	Not Present		

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-3: MEASUREMENT CONTROL			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
RRC transaction identifier	0		
Measurement Identity	2		
Measurement Reporting Mode			
- Periodical Reporting/Event Trigger Reporting Mode	Periodical reporting		
CHOICE Measurement type	Inter-RAT measurement		
- CHOICE Inter-RAT measurement objects	E-UTRA frequency list		
- New frequencies			
- E-UTRA carrier frequency	Downlink EARFCN of E-UTRA Cell		
- Measurement bandwidth	6		
- Inter-RAT measurement quantity			
- CHOICE system	E-UTRA		
- Measurement quantity	RSRQ		

- Inter-RAT reporting quantity			
- CHOICE system	E-UTRA		
- Reporting quantity	Measurement quantity		
- CHOICE report criteria	Periodical reporting criteria		
- Reporting amount	Infinity		
- Reporting interval	500 ms		
- Reporting cell status			
- CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT		
- Maximum number of reported cells	1		
DPCH Compressed mode status info	Not present		

MEASUREMENT REPORT message for inter-RAT test cases

Derivation Path: TS 36.508 [33], clause 4.7B.1 Table 4.7B.1-4: MEASUREMENT REPORT			
Information Element	**Value/remark**	**Comment**	**Condition**
Message Type			
Measurement identity	2		
E-UTRA Measured Results			
- E-UTRA measured results list	1 entry		
- E-UTRA Carrier Frequency	Checked that this IE is present		
- Measured E-UTRA cells	1 entry		
- Physical Cell Identity	Checked that this IE is present	PhysicalCellIdentity of Cell 2	
- RSRP	This IE does not need to be checked		
- RSRQ	Checked that this IE is present		
E-UTRA Event Results	Not present		

8.7.12.5 Test requirements

Table 8.7.12.5.2 and table 8.7.12.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.12.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.12.5.1: Void

**Table 8.7.12.5.2: UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRQ absolute accuracy tests**

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

**Table 8.7.12.5.3: E-UTRAN FDD cell specific test parameters
for E-UTRAN FDD RSRQ absolute accuracy tests**

Parameter		Unit	Test 1	Test 2	Test 3
BW$_{channel}$		MHz	10	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in TS 36.133 A.3.1.2.1			R.6 FDD	R.6 FDD	R.6 FDD
OCNG Pattern as defined in TS 36.133 A.3.2.1.2			OP.2 FDD	OP.2 FDD	OP.2 FDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note1]					
OCNG_RB[Note1]					
N_{oc}[Note2]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-80.80	-104.70	-119.50
	Bands 2, 5, 7 and 26 (Note 5)				-117.50
	Band 25				-116.00
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-116.50
	Band 9				-118.50
$\hat{E}_s/I_{ot}$		dB	-1.75	-3.20	-3.20
RSRP[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/15 kHz	-82.55	-107.90	-122.70
	Bands 2, 5, 7 and 26 (Note 5)				-120.70
	Band 25				-119.20
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-119.70
	Band 9				-121.70
RSRQ[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dB	-14.76	-15.69	-15.69
	Bands 2, 5 and 7, and 26 (Note 5)				
	Band 25				
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				
	Band 9				
Io[Note3]	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23 and 24	dBm/9 MHz	-50.80	-75.22	-90.02
	Bands 2, 5, 7 and 26 (Note 5)				-88.02
	Band 25				-86.52
	Bands 3, 8, 12, 13, 14, 17, 20 and 22				-87.02
	Band 9				-89.02
$\hat{E}_s/N_{oc}$		dB	-1.75-3.20	-3.20	
Propagation condition		-	AWGN	AWGN	AWGN

NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

NOTE 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

NOTE 5: For Band 26, the tests shall be performed with the assigned E-UTRA channel bandwidth within 865-894

Table 8.7.12.5.4: E-UTRAN FDD RSRQ absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3				
	All bands	All bands	Bands 1, 4, 6, 10, 11 18, 19, 21, 23, 24	Bands 2, 5, 7, 26	Band 25	Bands 3, 8, 12, 13, 14, 17, 20, 22	Band 9
Normal Conditions							
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16
Extreme Conditions							
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_17	RSRQ_17	RSRQ_17	RSRQ_17	RSRQ_17	RSRQ_17

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

8.7.13 E-UTRAN TDD RSRQ absolute accuracy

Editor's note: This Test case is incomplete for frequencies above 3GHz

- The Test system uncertainties applicable above 3GHz are undefined

- The Test Tolerances and Test Requirements applicable above 3GHz are undefined

8.7.13.1 Definition and applicability

The absolute accuracy of RSRQ is defined as the RSRQ measured from a cell that has different carrier frequency from the serving cell.

The E-UTRAN TDD RSRQ absolute accuracy measurement is used for handover between UTRAN FDD and E-UTRAN TDD.

The requirements and this test apply to the combined UTRAN FDD and E-UTRAN TDD UE for Rel.9 and later.

8.7.13.2 Minimum Requirements

The accuracy requirements for E-UTRA RSRQ measurements in CELL_DCH state shall be the same as the inter-frequency RSRQ accuracy requirements in 3GPP TS 36.133[34], as follows:

- Cell specific reference signals are transmitted either from one, two or four antenna ports.

- Conditions defined in TS 36.101 [2] clause 7.3 for reference sensitivity are fulfilled.

- RSRP|dBm according to 36.133 Annex B.3.3 for a corresponding Band.

Table 8.7.13.2.1: E-UTRAN TDD RSRQ absolute accuracy

Parameter	Unit	Accuracy [dB]		Conditions'				
		Normal condition	Extreme condition	Bands 1, 4, 6, 10, 11, 18, 19, 21, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40	Bands 2, 5, 7, 41	Band 25	Bands 3, 8, 12, 13, 14, 17, 20, 22	Bands 9, 42, 43
				Io	Io	Io	Io	Io
RSRQ when RSRP Ês/Iot > -3 dB	dBm	± 2.5	± 4	-121dBm/15kHz … -50dBm/ BW$_{Channel}$	-119dBm/15kHz … -50dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -50dBm/ BW$_{Channel}$	-118dBm/15kHz … -50dBm/ BW$_{Channel}$	-120dBm/15kHz … -50dBm/ BW$_{Channel}$
RSRQ when RSRP Ês/Iot ≥ -6 dB	dBm	± 3.5	± 4	-121dBm/15kHz … -50dBm/ BW$_{Channel}$	-119dBm/15kHz … -50dBm/ BW$_{Channel}$	-117.5dBm/15kHz … -50dBm/ BW$_{Channel}$	-118dBm/15kHz … -50dBm/ BW$_{Channel}$	-120dBm/15kHz … -50dBm/ BW$_{Channel}$
Note: Io is assumed to have constant EPRE across the bandwidth.								

The normative reference for this requirement is TS 36.133 [34] clause 9.1.3.1.

8.7.13.3 Test purpose

The purpose of this test is to verify that the E-UTRAN TDD RSRQ measurement accuracy in CELL_DCH state, for UE that needs compressed mode to perform E-UTRAN TDD measurements, is within the specified limits. This measurement is for UTRAN FDD to E-UTRAN TDD handover evaluation.

8.7.13.4 Method of test

8.7.13.4.1 Initial conditions

Test environment: normal, TL/VL, TL/VH, TH/VL, TH/VH; see clauses G.2.1 and G.2.2.

Frequencies to be tested: see table K.2 in Annex K.

In the test in Cell_DCH state compressed mode with purpose "E-UTRAN TDD RSRQ Measurement" is applied to measure on E-UTRAN TDD. The compressed mode pattern repeats every 80 ms and uses a gap length of 10 slots. Further details are found in table A.22 in annex A.5 of 3GPP TS 25.101.

Tables 8.7.13.4.1,1 and 8.7.13.4.1,2 define the limits of signal strengths and code powers on the UTRA FDD cell where the UTRA Carrier RSSI absolute accuracy requirements are applicable. In the measurement control information periodic reporting of E-UTRAN TDD RSRQ is indicated to the UE. The E-UTRAN TDD test parameters are given in Table 8.7.13.4.1,3.

Table 8.7.13.4.1.1: General test parameters for E-UTRAN TDD RSRQ absolute accuracy tests

Parameter	Unit	Value	Comment
DCH parameters		DL Reference Measurement Channel 12.2 kbps	As specified in 3GPP TS 25.101 section A.3.1
Power Control		On	
Target quality value on DTCH	BLER	0.01	
Active cell		Cell 1	1.28Mcps UTRA TDD cell
Neighbour cell		Cell 2	E-UTRA TDD cell
CP length of cell 2		Normal	
Uplink-downlink configuration of cell 2		1	As specified in table 4.2.2 in TS 36.211 [35]
Special subframe configuration of cell 2		6	As specified in table 4.2.1 in TS 36.211 [35]
Filter coefficient		0	L3 filtering is not used
Compressed mode patterns - E-UTRAN measurement		Compressed mode reference pattern 2 Set 5	As specified in table A.22 3GPP TS 25.101 section A.5
Inter-RAT measurement quantity		E-UTRAN TDD RSRQ	
Monitored cell list size		1 E-UTRAN TDD neighbour cell	Measurement control information is sent before the compressed mode pattern starts.

Table 8.7.13.4.1.2: UTRAN FDD cell specific test parameters for E-UTRAN TDD RSRQ absolute accuracy tests

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop		
NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

Table 8.7.13.4.1.3: E-UTRA TDD RSRQ measurement tests parameters

Parameter		Unit	Test 1	Test 2	Test 3
E-UTRA RF Channel Number			2	2	2
BWchannel		MHz	10	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel defined in A.2.2 in TS 36.521-3 [38]			R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.2 (OP.2 TDD) in TS 36.521-3 [38]			OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA[Note1]					
OCNG_RB[Note1]					
N_{oc}[Note2]	Bands 33 – 40	dBm/15 kHz	-80	-104.70	-119.50
	Band 42 and 43				-118.50
	Band 41				-117.50
$\hat{E}_s / I_{ot}$		dB	-1.75	-4.0	-4.0
RSRP[Note3]	Bands 33 – 40	dBm/15 kHz	-81.75	-108.70	-123.50
	Band 42 and 43				-122.50
	Band 41				-121.50
RSRQ[Note3]	Bands 33 – 43	dB	-14.76	-16.25	-16.25
Io[Note3]	Bands 33 – 40	dBm/9 MHz	-50	-75.46	-90.26
	Bands 42 and 43				-89.26
	Bands 41				-88.26
$\hat{E}_s / N_{oc}$		dB	-1.75	-4.0	-4.0
Propagation condition		-	AWGN	AWGN	AWGN

NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.

NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.

NOTE 3: RSRP, RSRQ and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.

NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.

8.7.13.4.2 Test Procedure

1) A call is set up according to the test procedure specified in TS 34.108 [3] subclause 7.3.2. The RF parameters for Test 1 are set up according to tables 8.7.13.5.2 and 8.7.13.5.3.

2) SS shall transmit PHYSICAL CHANNEL RECONFIGURATION message.

3) UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

4) SS shall transmit MEASUREMENT CONTROL message for inter RAT measurement. In the measurment control information periodic reporting of the E-UTRAN TDD RSRQ is requested to the UE.

5) UE shall transmit periodically MEASUREMENT REPORT messages.

6) SS shall check E-UTRAN TDD RSRQ value of Cell 2 in MEASUREMENT REPORT messages. The E-UTRAN TDD RSRQ value of Cell 2 reported by UE is compared to actual E-UTRAN TDD RSRQ value of Cell 2 for each MEASUREMENT REPORT message.

7) SS shall check MEASUREMENT REPORT messages transmitted by UE until statistical significance according to Tables G.2.3-1 in TS36.521-3 [38] is achieved.

8) The RF parameters are set up according to table 8.7.13.5.3 for Test 2. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

9) The RF parameters are set up according to table 8.7.13.5.3 for Test 3. While RF parameters are being set up, MEASUREMENT REPORT messages from UE are ignored. SS shall wait for additional [1s] and ignore the MEASUREMENT REPORT messages during this period. Then, step 6) and 7) above are repeated.

10) The SS shall transmit RRC CONNECTION RELEASE message.

11) UE shall transmit RRC CONNECTION RELEASE COMPLETE message.

Specific Message Contents

All messages indicated above shall use the same content as described in default message content in clause 9 of TS 34.108 [3] and clause 4.4 and 4.7B.1 of TS 36.508 [33], with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION message for Inter-RAT measurement (step 2):

Information Element	Value/Remark	Version
Message Type (10.2.22)		
UE Information Elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
-Integrity protection mode info	Not Present	
-Ciphering mode info	Not Present	
-Activation time	Not Present	
-New U-RNTI	Not Present	
-New C-RNTI	Not Present	
-RRC State Indicator	CELL_DCH	
-UTRAN DRX cycle length coefficient	Not Present	
CN Information Elements		
-CN Information info	Not Present	
UTRAN mobility information elements		
-URA identity	Not Present	
RB information elements		
-Downlink counter synchronisation info	Not Present	
PhyCH information elements		
-Frequency info (10.3.6.36)	Not Present	
Uplink radio resources		
-Maximum allowed UL TX power	33 dBm	
-CHOICE channel requirement	Not Present	
Downlink radio resources		
-CHOICE *mode*	FDD	
-Downlink PDSCH information	Not Present	R99 and Rel-4 only
-Downlink information common for all radio links (10.3.6.24)		
-Downlink DPCH info common for all RL (10.3.6.18)	Not Present	
-CHOICE mode	FDD	
-DPCH compressed mode info (10.3.6.33)		
- Transmission gap pattern sequence	1	
- TGPSI	1	

Information Element	Value/Remark	Version
- TGPS Status Flag	activate	
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256	
- Transmission gap pattern sequence configuration parameters		
-TGMP	E-UTRA measurement	REL-8
-TGPRC	NA	
-TGSN	10	
-TGL1	10	
-TGL2	Not Present	
-TGD	0	
-TGPL1	8	
-TGPL2	Not Present	R99 and Rel-4 only
-RPP	mode 0	
-ITP	mode 0	
-CHOICE UL/DL mode	UL and DL	
-Downlink compressed mode method	SF/2	
-Uplink compressed mode method	SF/2	
-Downlink frame type	B	
-DeltaSIR1	3.0	
-DeltaSIRafter1	3.0	
-DeltaSIR2	Not Present	
-DeltaSIRafter2	Not Present	
-N Identify abort	Not Present	
-T Reconfirm abort	Not Present	
-TX Diversity mode (10.3.6.86)	None	
-SSDT information (10.3.6.77)	Not Present	R99 and Rel-4 only
-Default DPCH Offset Value (10.3.6.16)	Not Present	
-Downlink information per radio link list	1	
-Downlink information for each radio link (10.3.6.27)		
-CHOICE mode	FDD	
-Primary CPICH info (10.3.6.60)		
-Primary scrambling code	100	
-PDSCH with SHO DCH info (10.3.6.47)	Not Present	R99 and Rel-4 only
-PDSCH code mapping (10.3.6.43)	Not Present	R99 and Rel-4 only
-Downlink DPCH info for each RL (10.3.6.21)		
-CHOICE mode	FDD	
-Primary CPICH usage for channel estimation	Primary CPICH may be used	
-DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400	
-Secondary CPICH info	Not Present	
-DL channelisation code		
-Secondary scrambling code	Not Present	
-Spreading factor	128	
-Code number	96	
-Scrambling code change	No change	
-TPC combination index	0	
- SSDT Cell Identity	Not Present	R99 and Rel-4 only
- Closed loop timing adjustment mode	Not Present	
- SCCPCH information for FACH (10.3.6.70)	Not Present	

MEASUREMENT CONTROL message for Inter-RAT measurement (step 4):

Information Element/Group name	Value/Remark	Version
Message Type (10.2.17)		
UE information elements		
-RRC transaction identifier	0	
-Integrity check info		
-message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.	
-RRC message sequence number	SS provides the value of this IE, from its internal counter.	
Measurement Information elements		
-Measurement Identity	2	
-Measurement Command (10.3.7.46)	Setup	
-Measurement Reporting Mode (10.3.7.49)		
-Measurement Report Transfer Mode	AM RLC	
-Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting	
-Additional measurements list (10.3.7.1)	Not Present	
-CHOICE Measurement type	Inter-RAT measurement	
-Inter-RAT measurement (10.3.7.27)		
-Inter-RAT cell info list(10.3.7.23)		
-CHOICE inter-RAT cell removal	Remove no inter-RAT cells	
-New inter-RAT cells	1	
-inter-RAT cell id	9	
-CHOICE Radio Access Technology	E-UTRA	
-Cell for measurement	Not present	
-Inter-RAT cell info indication	CV-Message	
-CHOICE *Inter-RAT measurement objects*	E-UTRA frequency list	REL-8
-E-UTRA frequency list(10.3.7.6b)		REL-8
-CHOICE E-UTRA frequency removal	Remove no frequencies	
-New frequencies		REL-8
-E-UTRA carrier frequency	Integer(0..65535).EARFCN of the downlink carrier frequency[64]	REL-8
Enumerated (6, 15, 25, 50, 75, 100). Measurement bandwidth information common for all neighbouring cells on the carrier frequency. It is defined by the parameter Transmission Bandwidth Configuration, N_{RB} [36.104]. The values indicate the number of resource blocks over which the UE could measure. Default value is 6.	Enumerated (6, 15, 25, 50, 75, 100). Measurement bandwidth information common for all neighbouring cells on the carrier frequency. It is defined by the parameter Transmission Bandwidth Configuration, N_{RB} [36.104]. The values indicate the number of resource blocks over which the UE could measure. Default value is 6.	REL-8
-Inter-RAT measurement quantity (10.3.7.29)		
-CHOICE *system*	E-UTRA	REL-8
-Measurement quantity	RSRQ	REL-8
-Filter coefficient	0	REL-8
-Inter-RAT reporting quantity(10.3.7.32)		
-UTRAN estimated quality	FALSE	
-CHOICE *system*	E-UTRA	REL-8
-Reporting quantity	measurement quantity	REL-8
-Reporting cell status (10.3.7.61)		
-CHOICE reported cell	Report cells within active set or within virtual active set or of the other RAT	
-Maximum number of reported cells	1	
-CHOICE report criteria	Periodical reporting criteria	
-Periodical reporting criteria (10.3.7.53)		
-Amount of reporting	Infinity	
-Reporting interval	500 ms	
Physical channel information elements		
-DPCH compressed mode status info (10.3.6.34)	Not Present	

MEASUREMENT REPORT message for inter-RAT test cases

This message is common for all inter-RAT test cases in clause 8.7 and is described in Annex I.

8.7.13.5 Test requirements

Table 8.7.13.5.2 and table 8.7.13.5.3 define the primary level settings including test tolerances for all tests.

For the test to pass, the ratio of successful reported values according to table 8.7.13.5.4 in each test shall be more than 90% with a confidence level of 95%.

Table 8.7.13.5.1: Void

Table 8.7.13.5.2: UTRAN FDD cell specific test parameters
for E-UTRAN TDD RSRQ absolute accuracy tests

Parameter	Unit	Cell 1
UTRA RF Channel number	-	Channel 1
CPICH_Ec/Ior	dB	-10
PCCPCH_Ec/Ior	dB	-12
SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
DCH_Ec/Ior	dB	Note 1
OCNS_Ec/Ior	dB	Note 2
Ior/Ioc	dB	-1
Ioc	dBm/3.84 MHz	-70
CPICH_Ec/Io	dB	-13.54
Propagation condition	-	AWGN
NOTE 1: The DPCH level is controlled by the power control loop NOTE 2: The power of the OCNS channel that is added shall make the total power from the cell to be equal to Ior.		

**Table 8.7.13.5.3: E-UTRAN TDD cell specific test parameters
for E-UTRAN TDD RSRQ absolute accuracy tests**

Parameter		Unit	Test 1	Test 2	Test 3
BW$_{channel}$		MHz	10	10	10
Measurement bandwidth		n_{PRB}	22—27	22—27	22—27
PDCCH/PCFICH/PHICH Reference measurement channel as defined in A.2.2 in TS 36.521-3 [38]			R.6 TDD	R.6 TDD	R.6 TDD
OCNG Patterns defined in D.2.2 (OP.2 TDD) in TS 36.521-3 [38]			OP.2 TDD	OP.2 TDD	OP.2 TDD
PBCH_RA		dB	0	0	0
PBCH_RB					
PSS_RA					
SSS_RA					
PCFICH_RB					
PHICH_RA					
PHICH_RB					
PDCCH_RA					
PDCCH_RB					
PDSCH_RA					
PDSCH_RB					
OCNG_RA^{Note1}					
OCNG_RB^{Note1}					
N_{oc} ^{Note2}	Bands 33-40	dBm/15 kHz	-80.80	-104.70	-119.50
	Bands 42 and 43				-118.50
	Band 41				-117.50
$\hat{E}_s/I_{ot}$		dB	-1.75	-3.20	-3.20
RSRP^{Note3}	Bands 33- 40	dBm/15 kHz	-82.55	-107.90	-122.70
	Bands 42 and 43				-121.70
	Band 41				-120.70
RSRQ^{Note3}	Bands 33-40	dB	-14.76	-15.69	-15.69
	Bands 42 and 43				
	Band 41				
Io^{Note3}	Bands 33-40	dBm/9 MHz	-50.80	-75.22	-90.02
	Bands 42 and 43				-89.02
	Band 41				-88.02
$\hat{E}_s/N_{oc}$		dB	-1.75	-3.20	-3.20
Propagation condition		-	AWGN	AWGN	AWGN
NOTE 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.					
NOTE 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for N_{oc} to be fulfilled.					
NOTE 3: RSRQ, RSRP and Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves.					
NOTE 4: RSRP and RSRQ minimum requirements are specified assuming independent interference and noise at each receiver antenna port.					

Table 8.7.13.5.4: E-UTRAN TDD RSRQ absolute accuracy requirements for the reported values

	Test 1	Test 2	Test 3		
	All bands	All bands	Bands 33 ~ 40	Bands 42, 43	Band 41
Normal Conditions					
Lowest reported value (Cell 2)	RSRQ_04	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16	RSRQ_16
Extreme Conditions					
Lowest reported value (Cell 2)	RSRQ_01	RSRQ_00	RSRQ_00	RSRQ_00	RSRQ_00
Highest reported value (Cell 2)	RSRQ_19	RSRQ_17	RSRQ_17	RSRQ_17	RSRQ_17

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in clause F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in clause F.4.